DOCUMENT RESUME

ED 404 530 CE 073 549

AUTHOR	Burch, Kelly
TITLE	Pharmacy Aide. Student Manual [and] Instructor Key.
INSTITUTION	Missouri Univ., Columbia. Instructional Materials Lab.
SPONS AGENCY	Missouri State Dept. of Elementary and Secondary Education, Jefferson City. Div. of Vocational and Adult Education.
PUB DATE	Jan 96
NOTE	229p.; Test sheets (unit evaluations and skill sheets) are printed on colored paper.
AVAILABLE FROM	Instructional Materials Laboratory, University of Missouri, 8 London Hall, 2316 Industrial Drive, Columbia, MO 65202; 800/669-2465; http://www.iml.coe.missouri.edu (student manual, order no. 50-1144-S: $18, 6 or more: $16.50; instructor key, order no. 50-1144-K: $3.45; competency profile, order no. 50-1144-C: $3).
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052) -- Guides - Classroom Use - Instructional Materials (For Learner) (051)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Allied Health Occupations Education; Allied Health Personnel; Competence; Competency Based Education; Course Content; Curriculum Guides; High Schools; Job Skills; Learning Activities; On the Job Training; *Paraprofessional Personnel; *Pharmaceutical Education; *Pharmacy; Teaching Methods
IDENTIFIERS	Missouri; *Pharmacy Technicians

ABSTRACT

The first component of this three-part package is a student manual designed to be used independently in secondary health occupations programs or on-the-job training programs for pharmacy aides. The manual contains six units that cover the following topics: introduction to pharmacy, communication skills, pharmaceuticals, prescription processing, maintaining the pharmacy, and business operations. Units are organized in lessons, which contain lesson objectives, key terms, content information, illustrations, and activity sheets. Each unit has a written evaluation to test students' knowledge and skill sheets that provide a record for mastery of the steps of procedure for each skill. A unit checklist located at the end of each unit provides a method for keeping track of activity sheets, clinical and laboratory activity sheets, skill sheets, and written unit evaluations. The second package component, the instructor key, provides answers to the activity sheets and unit evaluations. The third package component is a one-page student competency record. Contains 28 references and a glossary of 73 terms. (KC)

50-1144-S

Pharmacy

Student Manual

ED 404 530

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN **OTHER THAN PAPER COPY** HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

CE 073 549

Instructional Materials Lab • University of Missouri/Columbia

Missouri Department of Elementary and Secondary Education

Available from:
Instructional Materials Laboratory
University of Missouri-Columbia
2316 Industrial Drive
Columbia, MO 65202
800-669-2465 or 573-882-2883

"Development of this project was supported in whole or in part by funds from the Department of Elementary and Secondary Education, Division of Vocational and Adult Education. However, information or opinions expressed herein do not necessarily reflect the position or policies of the Missouri Department of Elementary and Secondary Education or the Division of Vocational and Adult Education, and no official endorsement should be inferred."

Pharmacy Aide

Student Manual

Kelly Burch, Pharm.D.
Assistant Professor
St. Louis College of Pharmacy
St. Louis, MO

Veronica Feilner, Editor and Project Coordinator
Jeannine Robling, Assistant Editor
Instructional Materials Laboratory
University of Missouri-Columbia

Produced by the
Instructional Materials Laboratory
University of Missouri-Columbia
Columbia, Missouri

January, 1996

Catalog Number 50-1144-S

Table of Contents

Acknowledgments vi

Foreword vii

Bibliography ix

Glossary xi

Unit I - Introduction to Pharmacy ..... *Introduction to Pharmacy*

Lesson 1: The Pharmacy Industry 3
Activity Sheet: The Pharmacy Industry 9
Lesson 2: Ethics 13
Activity Sheet: Ethics 15
Lesson 3: Missouri Pharmacy Law 17
Activity Sheet: Missouri Pharmacy Law 21
Lesson 4: Federal Regulatory Agencies Affecting Pharmacy Practice 23
Activity Sheet: Federal Regulatory Agencies and Acts Affecting Pharmacy Practice 31
Unit Checklist 33

Unit II - Communication Skills ..... *Communication Skills*

Lesson 1: Direct Customer Assistance 3
Activity Sheet: Direct Customer Assistance 7
Lesson 2: Telephone Customer Assistance 9
Activity Sheet: Telephone Customer Assistance 13
Lesson 3: Interacting with Co-workers 15
Activity Sheet: Interacting with Co-workers 17
Unit Checklist 19

Unit III - Pharmaceuticals ..... *Pharmaceuticals*

Lesson 1: Pharmacology 3
Activity Sheet: Pharmacology 9
Lesson 2: Organization of Drugs in the Pharmacy 11
Activity Sheet: Organization of Drugs in the Pharmacy 19
Lesson 3: Measurement Systems 23
Activity Sheet: Measurement Systems 27
Unit Checklist 31

Unit IV - Prescription Processing ..... *Prescription Processing*

Lesson 1: Processing Information for Prescription Orders and Physician Orders 3
Activity Sheet: Processing information for Prescription Orders and Physician Orders 15

Lesson 2: Preparing Medications 19
Activity Sheet: Preparing Medications 27
Unit Checklist 29

Unit V - Maintaining the Pharmacy ..... *Maintaining the Pharmacy*

Lesson 1: Maintaining Pharmacy Stock 3
Activity Sheet: Maintaining Pharmacy Stock 9
Lesson 2: Marketing 11
Activity Sheet: Marketing 13
Unit Checklist 15

Unit VI - Business Operations ..... *Business Operations*

Lesson 1: Process Sales Transactions 3
Activity Sheet: Process Sales Transactions 7
Lesson 2: Third-party Transactions 9
Activity Sheet: Third-party Transactions 13
Lesson 3: Office Skills 15
Activity Sheet: Office Skills 19
Unit Checklist 21

Appendix I ..... *Appendix I*
Appendix II ..... *Appendix II*

UNIT WRITTEN EVALUATIONS AND SKILL SHEETS
(included at the end of the manual)

Unit I - Introduction to Pharmacy ..... *Introduction to Pharmacy Test*

Written Unit Evaluation 1

Unit II - Communication Skills ..... *Communication Skills Test*

Written Unit Evaluation 1

Unit III - Pharmaceuticals ..... *Pharmaceuticals Test*

Written Unit Evaluation 1

Unit IV - Prescription Processing ..... *Prescription Processing Test*

Written Unit Evaluation 1
Skill Sheet: Process Information for a New Prescription 7
Skill Sheet: Prepare Solid Dosage Forms for Dispensing into Bottles 9
Skill Sheet: Prepare Liquid Dosage Forms for Dispensing into Bottles 11
Skill Sheet: Reconstitute Oral Liquids for Dispensing into Bottles 13
Skill Sheet: Prepare Topical, Otic, Ophthalmic, Rectal, and Vaginal Medications for Dispensing 15
Skill Sheet: Repackage Solid Dosage Forms for Dispensing into Bubble Packs 17
Skill Sheet: Repackage Liquid Dosage Forms for Dispensing into Cups 19

Unit V - Maintaining the Pharmacy ..... *Maintaining the Pharmacy Test*

Written Unit Evaluation 1
Skill Sheet: Receive a Shipment of Medication 5
Skill Sheet: Store Prescription Medications 7
Skill Sheet: Store Over-the-Counter Medications 9

Unit VI - Business Operations ..... *Business Operations Test*

Written Unit Evaluation 1

Pharmacy Aide Competency Record

Pharmacy Aide Certificate of Achievement

Acknowledgments

The content of the *Pharmacy Aide* manual was developed with input from secondary health occupations education instructors, post-secondary school of pharmacy instructors, pharmacists, pharmacy technicians, and personnel from the Missouri Department of Elementary and Secondary Education and the Instructional Materials Laboratory at the University of Missouri-Columbia. A sincere thank you is extended to advisory committee members for donating their time to this project.

Pharmacy Aide Advisory Committee:

Victoria J.M. Brown, RN, M.S.N, Ironton, MO

Kelly Burch, Pharm.D., Assistant Professor, St. Louis College of Pharmacy, St. Louis, MO

Stephen M. Calloway, Pharmacist, University Hospital, Columbia, MO

Diana L. Cotton, Pharmacy Technician, Cass Medical Center, Harrisonville, MO

Charles E. Hensley, Pharmacist, CMSU Student Health Center, Warrensburg, MO

Bob Kilgore, Pharmacist/Pharmacy Owner, Kilgore's Medical Pharmacy, Columbia, MO

Delbert Lund, Supervisor, Vocational Planning and Evaluation, Department of Elementary and Secondary Education, Jefferson City, MO

Robert McKinney, Senior Pharmacy Technician, Parkland Hospital, Farmington, MO

Brenda K. Noland, RN, B.S.N, Cass Career Center, Harrisonville, MO

Mike Pennington, Pharmacist, Western Missouri Medical Center, Warrensburg, MO

Jane Scott, RN, B.S.N., Supervisor, Health Occupations Education, Department of Elementary and Secondary Education, Jefferson City, MO

Instructional Materials Laboratory Staff:

Harley Schlichting, Director
Phyllis Miller, Assistant Director
Dan Stapleton, Assistant Director
Veronica Feilner, Editor and Project Coordinator
Jeannine Robling, Assistant Editor
Leslie Forbes, Graphic Designer
Kristen Jackson, Graphic Designer
Jan Trimble, Word Processor III
Lisa Street, Editorial Assistant
Laura Haynes, Editorial Assistant

Foreword

This *Pharmacy Aide* manual is designed to be used independently by students who are in secondary health occupations programs or by individuals receiving on-the-job training in a pharmacy. A clinical site (pharmacy) is needed for individuals to practice pharmacy aide skills and to demonstrate mastery of those skills.

This manual is divided into six units: Introduction to Pharmacy, Communication Skills, Pharmaceuticals, Prescription Processing, Maintaining the Pharmacy, and Business Operations. Units are further divided into lessons, which contain lesson objectives, key terms, content information, illustrations, and activity sheets as appropriate for the content. Activity Sheets are designed to assist the learner in mastering the information in each lesson. The Clinical/Laboratory Activities included on the Activity Sheets should be reviewed or discussed with the instructor or clinical supervisor upon completion.

Each unit has a written evaluation, which should be taken after all lessons in the unit are studied. A score of 80 percent is needed for mastery of information in the unit. Skill Sheets provide a record for mastery of the steps of procedure for each skill. The learner should practice the skills outlined in the lessons before requesting evaluation of the skills. Not all lessons contain Skill Sheets. Your clinical supervisor, a registered pharmacist in practice at your clinical site, will be evaluating mastery of the skills.

A Unit Checklist, located at the end of each unit, provides a method for keeping track of Activity Sheets, Skill Sheets, and Written Unit Evaluations to be completed in the unit.

The Written Unit Evaluations and Skill Sheets are included at the end of the manual. If you are taking this instruction under the supervision of an instructor or clinical supervisor, these pages may have removed from your manual. When you are ready to complete a Written Unit Evaluation or a Skill Sheet, check with your instructor or clinical supervisor.

Those using this manual on an individual basis may want to order the Instructor's Key, which provides answers to Activity Sheets and Unit Evaluations.

Prior to beginning this manual, the student should successfully master all competencies in the Health Care Assistant Core Curriculum. The Core Curriculum is designed to teach information and skills common to all health care workers.

Bibliography

Ahrens, Steven N. (ed.). *Official Manual of the State of Missouri 1993-1994*. Jefferson City, Missouri: The State of Missouri, 1993.

American Society of Hospital Pharmacists. *Manual for Pharmacy Technicians*. 1st ed. Bethesda, Maryland: American Society of Hospital Pharmacists, 1992.

Heckman, Karen; Patricia F. Noirfalise. *Dental Aide* (Student Manual). University of Missouri-Columbia: Instructional Materials Laboratory, 1995.

Michigan Pharmacists Association. *Pharmacy Certified Technician Training Manual*. 6th ed. Lansing, Michigan: Michigan Pharmacists Association Education Center, 1992.

Missouri Board of Pharmacy. *Laws of the State of Missouri Relating to Pharmacists, Pharmacies, Drug Distributors and Intern Pharmacists*. Jefferson City, Missouri: Missouri Board of Pharmacy, 1995.

Office of the Federal Register/National Archives and Record Administration. *The United States Government Manual 1995/1996*. Washington, DC: U.S. Government Printing Office, 1995.

Schafermeyer, KW, Hobson EH. *The Community Retail Pharmacy Technician Training Manual*. 1st ed. Alexandria, Virginia: National Association of Retail Druggists, 1995 .

Troyka, Lynn Quitman. *Handbook for Writers*. 2nd ed. Engelwood Cliffs, New Jersey: Prentice Hall, 1990.

Glossary

A

Administration area - an area of the pharmacy where paperwork and ordering functions may be done

Ambulatory care pharmacy - a pharmacy in a hospital providing medications for outpatients; often smoothing the transition from hospital to home care.

Apothecary system - an older system of measurement that was once used in pharmacy practice

Assignment of benefits - the third-party payer sends payment directly to the pharmacy.

Auxiliary labels - narrow, brightly colored strip labels that contain information to remind patients of the best use of the medication

Avoidance - a method of conflict resolution by staying away from the source of the conflict

Avoirdupois system - the system of measurement that is familiar to most Americans

B

Back order - a promise from the supplier to fill an order as soon as the product is available

Balance - a type of scale designed to accurately weigh very small quantities of a solid substance

Board of Healing Arts - responsible for the examination of and licensure of individuals to practice as physicians and surgeons and to register each person who is licensed

Board of Nursing - adopts and revises rules and regulations necessary to affect the revisions of the Nursing Practice Act, provides minimum standards for nursing education programs and , and accredits nursing programs

Brand name - a trade name; a drug with a trademark name that is usually easy to remember

Bubble pack - unit dose packaging that contains solid form medications; medication in a plastic bubble is punched through foil or paper backing

Bureau of Narcotics and Dangerous Drugs (BNDD) - a state agency in the Missouri Department of Health that regulates the use and dispensing of controlled substances

C

Capitation fee - a fixed amount paid by HMOs for every patient in the plan

Capsule - a solid dosage form containing the active drug and inactive powders within a hard gelatin shell

Cash transaction - sale made with cash and checks

Cassette - storage compartment for medication; can be locked for controlled substances

Claim - the bill submitted to the third-party by the pharmacy

Clerk - a person who involved mainly in the business aspects of the pharmacy

Clinical - patient-oriented functions

Clinical therapeutics - the study of the use of medications in particular diseases

Coinsurance - the patient pays for a percentage of the prescription rather than a fixed dollar amount, as in a co-payment

Compounding - preparation of medications that are not available from a manufacturer, e.g. making a suppository for a baby using crushed tablets

Confirmation bias - a psychological phenomenon that occurs when people see what they expect to see

Conflict resolution - method used to solve a conflict

Controlled Substances Act (CSA) - the group of laws that regulate controlled substances

Co-payment - requires the patient to pay a fixed dollar amount for every prescription

Counting tray - a tray that is used to count tablets or capsules

Cream - a water based medication that is absorbed by the affected area of the skin

Credit card sale - sale made with a credit card; the credit card company pays the pharmacy and the customer promises to pay the credit card company the money owed

Customer - a person that purchases a commodity or service; used when describing the business or consumer-related aspects of the pharmacy

D

Data entry area - the area of the pharmacy that contains the computer

Deductible - requires patients to pay for all of their prescription expenses until a specified

dollar amount has been reached

Department of Health - an agency responsible for the functions of various state social welfare and health delivery agencies

Dosage form - size, shape and content of a medication

Drug - an active chemical ingredient which is contained in a medication

Drug Enforcement Administration (DEA) - a federal agency that regulates the everyday access of controlled substances through legal channels of distribution

E

Efficacy - effectiveness

Elixir - a type of oral liquid used when the drug does not dissolve in water; the drug is dissolved in a small amount of alcohol

Enteral - a route of administration that uses the gastrointestinal tract for absorption; routes of administration include oral, sublingual, and rectal

Expiration date - the date at which a product's potency and appearance are no longer guaranteed by the manufacturer

F

Food and Drug Administration (FDA) - a federal agency established to protect the health of the nation against impure and unsafe drugs, cosmetics, and other potential hazards.

Food, Drug, and Cosmetic Act - an act that extended federal regulatory power to cover cosmetics and medical devices, require the approval of new drugs, require that tolerance levels be set for poisonous substances, and authorize inspection of factories where regulated products are manufactured

Formulary - a list of drug products that are available for use in a particular pharmacy, hospital, health care provider's office, or within a managed health care group

G

Generic name - a drug not protected with a trademark

Graduated cylinder - a cylinder marked by a succession of lines, steps, or degrees that is used to measure volume

H

Hazardous chemical - a chemical that is defined by the Hazard Communication

Standard as flammable, reactive, explosive, corrosive, toxic, carcinogenic, or radioactive

Hazard Communication Standard - the "right to know" law; dictates that employees have a right to know about health hazards in the workplace and how to protect themselves from these hazards

Health Maintenance Organizations (HMOs) - a managed care program that pays pharmacies a fixed amount for each patient in the plan or for each prescription dispensed

Home-care pharmacy - a combination of retail and hospital pharmacy practice that works with patients, physicians and nurses to allow complicated treatments to be given in patients' homes

Hospital pharmacy - pharmacies that supply patients with medications that are needed during their hospital stay

I

In-store credit - sales are charged to an in-store account and patients are billed monthly

In-window - the area of the pharmacy where patients are greeted and patient interviews are conducted

Inhalation - a route of administration where medication is inhaled into the lungs

Inpatient - a hospitalized patient

Intern - a pharmacy student working in a pharmacy

Intradermal - a route of administration where the medication is injected into the skin, usually to assess the immune system

Intramuscular - a route of administration where the medication is injected into the muscle and absorbed into the bloodstream

Intravenous - a route of administration where the medication is injected into the bloodstream

Investigational drugs - drugs that are still being investigated and not yet available to the public

J

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) - an agency that requires a minimum level of quality in the provision of health care services

L

Legend - the federal warning printed on the pharmacy package

Local - an effect that is limited to the part of the body which comes in direct contact with the drug

Lot number - a number used to identify a product in the case of a recall

Lozenge - a solid dosage form containing an active drug in a sugar sweetened base similar to hard candy

M

Manifest - the form that accompanies a shipment that describes the number of boxes

Material Safety Data Sheet (MSDS) - a sheet that provides highly specific information about a particular hazardous chemical

Mediation - a method of conflict resolution achieved by obtaining the advice of a neutral third party

Medicaid - a state health insurance program that provides health care for people with low incomes

Medicare - a federal insurance program that provides health insurance for the elderly and disabled

Medication - a drug and its dosage form

Medication Administration Record (MAR) - a list that contains specific instructions for a patient taking unit doses

Medication bay - a u-shaped shelving unit for storing drugs

Meniscus - the curved surface of a fluid

Metric system - a system of measurement that is most common in pharmacy practice

Min/max system - a system that is used for managing inventory; when a minimum predetermined order point is reached, the product should be ordered.

Missouri Board of Pharmacy - the main agency that oversees the practice of pharmacy in Missouri

Missouri Bureau of Narcotics and Dangerous Drugs - a state agency in the Missouri Department of Health that regulates the use and dispensing of controlled substances

Missouri Department of Health - responsible for the functions of various state social welfare

and health delivery agencies

Monitoring parameters - signs of improvement, side effects or interaction between drugs

Mortar - a strong bowl-like vessel in which a medication is crushed by the pestle

Mutual problem solving - a method of conflict resolution achieved by both sides working together to resolve the conflict and come up with solutions that are mutually acceptable

N

Nasal - a roue of administration; applied or inhaled into the nose

O

Occupational Safety and Health Administration (OSHA) - develops and promulgates occupational safety and health standards, develops issues and regulations, conducts investigations and inspections and issues citations for noncompliance with safety and health standards and regulations

Ointment - an oil-based medication

Ophthalmic - a route of administration where the medication is applied to the eye

Oral syringe - an instrument used for introducing a small amount of fluid orally into the body

Oral - a route of administration where medication is taken by mouth and swallowed

Otic - a route of administration where medication is applied into the ear canal

Out-window - area of the pharmacy where pharmacists counsel patients and sales staff complete the transaction

Over-the-counter - drugs that can be sold without a prescription

P

Packing slip - a list that describes what specific items are in a shipment

Parenteral - a route of administration including various types of injections

Patient - a person who visits the pharmacy with health-related or prescription-related needs

Pestle - a club-shaped instrument used for grinding solid dosage forms

Pharmaceutical care - the most comprehensive goal of the pharmacy team; to provide medications and information in order to help patients feel healthy

Pharmaceutical manufacturers - manufacturers who work with medical research teams in order to study the effects of drugs on new patients

Pharmaceutics - the study of how dosage forms are designed and how they regulate the release of drugs in the body

Pharmacist - a person who provides medications and information in order to help patients feel as healthy as possible

Pharmacokinetics - study of how drugs move in the body

Pharmacology - the study of the composition, uses, and effects or drugs

Pharmacy aide - a pharmacy assistant trained to concentrate more on business and marketing aspects; works under the direct supervision of a pharmacist

Pharmacy buyer - a pharmacy employee who handles all ordering and receiving of drugs and supplies for the pharmacy

Pharmacy technician - a pharmacy assistant with a broad training and varied responsibilities who works under direct supervision of a pharmacist

Physician order - an order in a hospital or long-term care facility that contains medication orders and other physician requests on the same sheet

Pick up area - the area of the pharmacy where filled prescriptions are kept

Plan-a-gram - a map of a pharmacy or store display

Poison Prevention Packaging Act (PPPA) - an act that requires household substances to be packaged for consumers in child-resistant packaging

Preferred Provider Organizations (PPOs) - a managed care program in which a group of pharmacies contract to provide pharmacy services at discounted prices

Preparation area - the area of the pharmacy where medications are packaged for patients

Preparation trail - an arrangement of materials so that the steps followed in preparing the prescription are apparent to the pharmacist

Prescriber - a person who is authorized to write prescriptions, such a physician, dentist or nurse practitioner

Prescription bottle - a container for medication that contains many doses for the patient to self-administer; also called a prescription oval

Prescription log - a log, required in some states, that documents which prescription orders were filled in a particular day and by whom the prescription orders were filled

Prescription order - an order for medication by a licensed prescriber such as a physician or

dentist

Purchase order - a list of products needed by the pharmacy and sent to the vendor or supplier

R

Recalled drug - a drug product that has been called to return to the manufacturer because it has a problem and should not be used by patients

Rectal - a route of administration where the medication is inserted into the rectum

Repackaging - packaging bulk medications into unit dose containers

Repackaging log - a list that contains all repackaging information if the labels are too small to put on the unit dose

Retail pharmacy - a pharmacy that emphasizes general merchandise or discounting and pharmacy service is offered with an emphasis on price and convenience

Route of administration - the method for taking a medication

S

Solution - a liquid dosage form containing the drug dissolved in water

Subcutaneous - a route of administration where the medication is injected under the skin and absorbed into the bloodstream

Sublingual - a route of administration where the medication is placed under the tongue and allowed to dissolve

Suppository - a solid dosage form containing an active ingredient dissolved in an oily base for rectal or vaginal use

Suspension - a liquid dosage form characterized by small particles of drug powders suspended in liquid

Syrup - a liquid dosage form that contain the drug dissolved in sugar water

Systemic - an effect from a drug that is absorbed into the blood stream and delivered to the site of action

T

Tablet - a solid dosage form made of tightly compressed powder

Third-party payer - someone other than the patient who is responsible for the reimbursement of health services

Topical - a route of administration where the drug is applied directly to the affected area

Transdermal patch - a route of administration where the medication in an adhesive bandage is applied to the skin and the medication is absorbed into the bloodstream through the skin

U

Unit dose form - each dose of medication required by the patient is packaged individually

V

Vaginal - a route of administration where the medication is inserted into the vagina

W

Want book - a list used to alert purchasing personnel of the need to reorder a product; also called a want list

Unit I

Introduction to Pharmacy

After completing this unit, you should be able to identify all types of pharmacies, members of the pharmacy staff and the roles of each staff member. This unit stresses the importance of patient confidentiality and professional work habits. Agencies and laws that affect pharmacy practice are also outlined in this unit.

Unit Lessons

The Pharmacy Industry

Ethics

Missouri Pharmacy Law

Federal Regulatory Agencies and Acts Affecting Pharmacy Practice

Lesson 1:
The Pharmacy Industry

Objectives:

A. Identify how the terms "drug" and "medication" and "patient" and "customer" differ.

B. Identify types of pharmacy practices.

C. Identify roles and responsibilities of pharmacy team members.

D. Identify educational requirements and training of team members.

E. Identify location of team members in an organizational chart.

F. Identify the chain of command within a pharmacy.

Key Terms:

- Drug
- Medication
- Patient
- Customer
- Retail pharmacy
- Hospital pharmacy
- Ambulatory care pharmacy
- Inpatient
- Investigational drugs
- Home-care pharmacy
- Pharmaceutical care
- Pharmacist
- Clinical
- Pharmacology
- Pharmaceutics
- Pharmacokinetics
- Clinical therapeutics
- Intern
- Pharmacy technician
- Clerk
- Pharmacy buyer
- Pharmacy aide

You have chosen to learn about pharmacy and to prepare yourself to assist pharmacists with the important responsibility of providing pharmaceutical care to patients. Before you begin your studies of this field, you need to consider four important definitions. You need to know the difference between a drug and a medication, and the difference between a patient and a customer.

Drug vs. Medication

When working in a pharmacy, it is important to have a good understanding of how the terms "drug" and "medication" differ. These terms are close in meaning, but are not the same. In these lessons, the word **drug** refers to an active chemical ingredient which is contained in a medication. A **medication** refers to the drug (or chemical) and the dosage form. Often, the word medication is more acceptable to patients who may be alarmed by the implications of the word "drug."

Patient or Customer?

Pharmacy is a health care occupation that usually has more of a business component than some other health care occupations. You already know that people visit pharmacies for all different reasons, and soon you will learn about some different types of pharmacies. In these lessons, the term **patient** is used when discussing health-related or prescription-related needs of people who visit the pharmacy. When discussing consumer issues, or issues that concern marketing or business aspects, the term **customer** is used.

Types of Pharmacies

There are many types of pharmacies that offer job opportunities for pharmacists and pharmacy support staff. The most common types of pharmacies are retail pharmacy, hospital pharmacy, and home-care pharmacy.

Retail pharmacies are probably the most familiar to the public. A pharmacy may be one department of a large retail chain or grocery store. Chain store pharmacies offer general merchandise as well as pharmacy services. Often, the emphasis of these traditional types of stores is general merchandise or discounting, and the pharmacy service is offered with an emphasis on price and convenience.

Other retail pharmacies emphasize individualized patient monitoring and counseling. These types of pharmacies may offer a selection of over-the-counter medications but do not sell general merchandise. Some of these pharmacies look like a medical office rather than a store. The pharmacist may specialize in a particular type of patient care. For example, a pharmacy located in a medical building with several diabetes specialists may offer special services and products for patients with diabetes. Professional pharmacy services can be offered in many different settings depending on the priorities of the pharmacy and pharmacists. The owner of a retail pharmacy may be a corporate owner, or the business may be independently owned by the pharmacist.

Hospital pharmacies supply patients in the hospital with medications that are needed during their hospital stay. Hospital pharmacies sometimes operate a retail, or ambulatory, pharmacy as well. **Ambulatory care pharmacies** look and function a lot like retail pharmacies, but they usually fulfill the additional job of smoothing the transition from hospital to home care. This is especially true when they are part of a university referral hospital, or a specialty hospital (a pediatric or cancer hospital, for example). The ambulatory care pharmacy can help the patient get started on a complex treatment that was prescribed by specialists. The pharmacists can advise a local pharmacy on how to help the patient continue the specialized treatment. The ambulatory care pharmacy may provide special teaching services for patients who have recently learned that they have a particular illness, such as diabetes or cancer.

The needs of hospitalized patients, also called **inpatients**, often include intravenous medications and fluids as well as oral medications. These needs often change rapidly, especially for patients in emergency or intensive care, and the pharmacy department must be able to respond quickly and accurately. In large hospitals, **investigational drugs**, drugs that are not yet available to the public, are part of the care patients receive. The pharmacy department usually has special responsibilities in assisting with the research on investigational drugs.

Home-care pharmacy is a newer area of specialty practice. In many ways, it is a combination of hospital and retail practice. Home-care pharmacists work with patients, physicians, and nurses to allow complicated treatments to be given in patients' homes. Patients may require a few days, a few weeks, or a lifetime of treatment with an intravenous therapy at home. A home-care pharmacy will prepare medications in a way that is suitable for the patient to self-administer them. These types of pharmacies provide very individualized, although costly, patient care. In most circumstances, the ability to provide the care at home ends up saving money in the long run. Patients also seem to recuperate

more quickly at home than in the hospital. Some patients even return to work or school while they are still finishing their intravenous therapy.

We previously discussed the difference between a patient and a customer. Remember that the term patient was used throughout the discussion of the types of pharmacies. When a person is receiving medications and information from the pharmacy, he or she is usually referred to as a "patient." In some retail pharmacies when nonmedical merchandise is purchased, the person is usually referred to as a "customer." The same person may be referred to as a "patient" when medications are being purchased.

The Pharmacy Team

The most comprehensive goal of the pharmacy team can be described as providing **pharmaceutical care**. Just as nurses provide nursing care and physicians provide medical care, pharmacists provide pharmaceutical care. This describes a pharmacist's role in the broadest terms possible. More specifically, **pharmacists** provide medications and information in order to help patients feel as healthy as possible. The term pharmaceutical care describes the **clinical**, or patient-oriented, functions of the pharmacist. The pharmacist also has the responsibility of controlling access to certain medications, storing medications safely, complying with state and federal laws that regulate drug dispensing, and running the business aspects of the pharmacy. This is a big job, and most pharmacists need a team of trained workers to assist in these responsibilities.

The pharmacy team is always headed by a pharmacist. All pharmacists complete at least five years of college. After graduation from an accredited college of pharmacy, he or she must pass an examination that comprehensively assesses their knowledge and skills. The courses that pharmacists must master include chemistry, pharmacology, pharmaceutics, pharmacokinetics, compounding, management, communications, calculus, calculations, and clinical therapeutics. **Pharmacology** is discussed in detail later, but it can be defined as the study of the effects of drugs on the body. **Pharmaceutics** is the study of how dosage forms are designed and how they regulate the release of drugs in the body. Students learn how long-acting forms of drugs are designed in pharmaceutics. **Pharmacokinetics** describes how drugs move within the body. Students learn how much of a drug is absorbed, where the drug goes in the body, and how it is eliminated from the body. **Clinical therapeutics** is the study of the use of medications in particular diseases. It combines many of the previous courses that are included in the pharmacy curriculum. Students complete this course just before they begin their rotations in different types of pharmacies.

Pharmacy students are required to get experience working in pharmacies before they are allowed to take the registration examinations and obtain a license to practice pharmacy. Some of their experience comes within their college course work, but all students must work outside the curriculum as well. Pharmacy students working in a pharmacy are called **interns**. In some ways, they may have similar duties to a technician or aide, but they often progress to additional responsibilities as they move along within the pharmacy school curriculum. If you have pharmacy students working in your pharmacy, your pharmacy and your pharmacists must pass additional tests set by the Board of Pharmacy.

Many pharmacists now choose to spend additional time in school in order to obtain the training needed for the Doctor of Pharmacy (abbreviated Pharm.D.) degree. The Pharm.D. degree usually indicates that the pharmacist has advanced training in patient-oriented pharmacy practice. After graduation, many pharmacists complete residencies in specialty areas of pharmacy practice. Specialty areas include nutrition, pediatrics (children), geriatrics (elderly), oncology (cancer), and others.

The **pharmacy technician** may be trained on the job, through a community college program, or while serving in the military. Courses in computer applications, calculations, pharmacology, and some business course work are part of the curriculum. In some states, an examination is available to certify the experience and training of a pharmacy technician. Pharmacy technicians work under the direct supervision of a pharmacist. Depending on the needs of the pharmacy, they may be involved in all aspects of pharmacy practice. Pharmacy technicians must be very accurate and detail-oriented in their work and be able to follow directions carefully. Computer skills are important for most pharmacy technicians.

A **clerk** usually does not perform any prescription-related functions in the pharmacy. A clerk may ring up sales, restock shelves, answer the phone, and assist with some business functions. Generally, a clerk does not assist the pharmacist with any record keeping or drug handling. Clerks are typically trained on the job. Hospital pharmacies may need a clerk or secretary to prepare correspondence from the director of pharmacy to outside agencies or companies and to maintain some pharmacy management records.

Many large pharmacies, especially those in hospitals, have a **pharmacy buyer**. The buyer handles all ordering and receiving of drugs and supplies for the pharmacy. Computer skills, as well as general business and accounting skills, are important in this job. The buyer reports to the pharmacist to ensure that correct choices are made in deciding which drugs and in what quantities the pharmacy needs to stock.

What does the **pharmacy aide** do? The duties depend on the practice. The pharmacy aide may perform aspects of all of the support tasks. Those tasks which have to do with patient care are directly supervised. Other, more business type tasks are less supervised. A pharmacy aide is usually trained on the job for the specific skills needed by that practice. The technician's tasks are most similar, but the pharmacy technician generally has broader training on functions in the pharmacy, whereas the aide may concentrate more on business and marketing aspects.

There are other careers in pharmacy that are less traditional and less visible to the public. Pharmaceutical manufacturers need people to work in research, distribution, and sales. Each of these careers has specific training requirements, and most require college education and training.

Work Relationships

Work that a pharmacy technician or pharmacy aide does on prescriptions for patients is always checked by a pharmacist. Other business-oriented types of work such as billing or filing may not be checked right away. Both pharmacy technicians and pharmacy aides must be able to work accurately and independently and be able to take directions and make appropriate corrections on all patient-oriented types of work.

In many workplaces, especially hospitals and large chain pharmacies, each job is carefully outlined in a job description. The job description defines the duties and responsibilities for a particular position. It also states who supervises the employee. The aide always reports directly to the pharmacist. In a large pharmacy, the aide may report to a specific manager for administrative questions. Additional information such as dress code, schedule, and educational and physical requirements may be in the job description.

See Figure 1.1 for the hospital pharmacy organizational chart. See Figure 1.2 for retail chain pharmacy organizational chart.

Who does the pharmacist report to?

The nature of a pharmacist's job means that he or she is responsible to a number of other people. The patient relies on the pharmacist for medications and information. Physicians, nurses, and other professionals need the pharmacist to respond to their needs for medications and information about drugs. The physician is the leader of the health care team. Other disciplines, such as nursing, physical therapy, and pharmacy, contribute their expertise to patient care through the physician.

In a hospital pharmacy, pharmacists report to a director of pharmacy. The director of pharmacy must report to an administrator who oversees the business aspects of the department. The director of pharmacy also reports to a committee of physicians who oversee the patient care aspects of the pharmacy department. A system of checks and balances in all types of pharmacy practice helps to ensure that patients get safe, effective, and affordable pharmaceutical care.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Figure 1.1

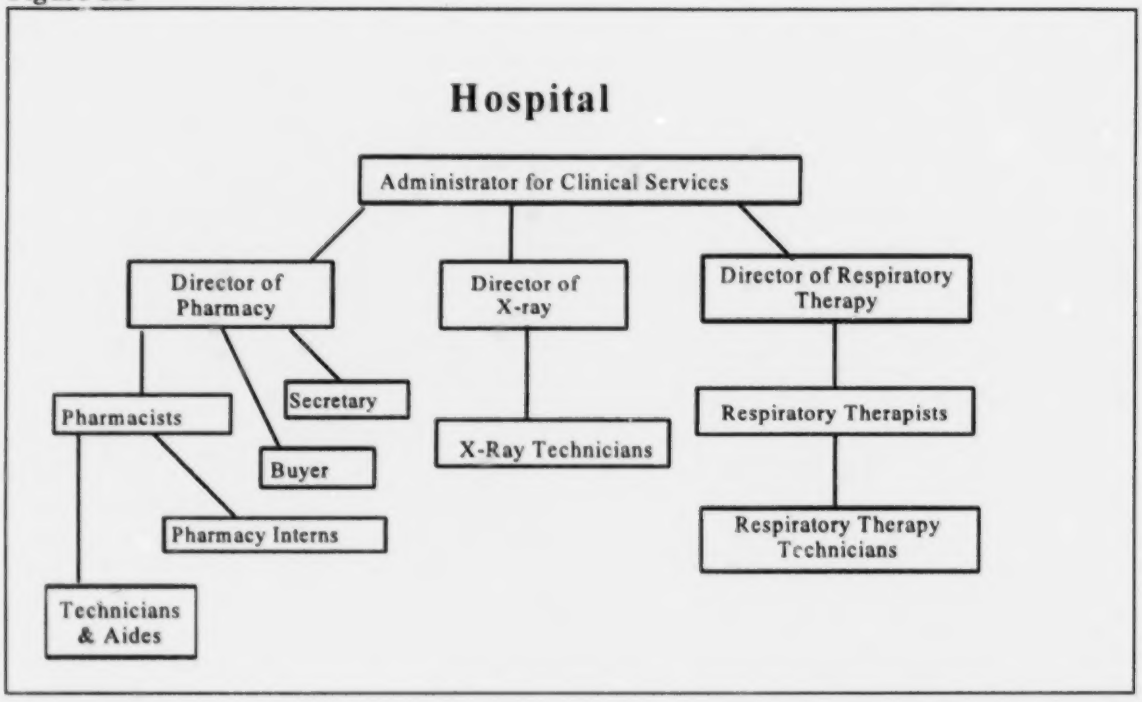
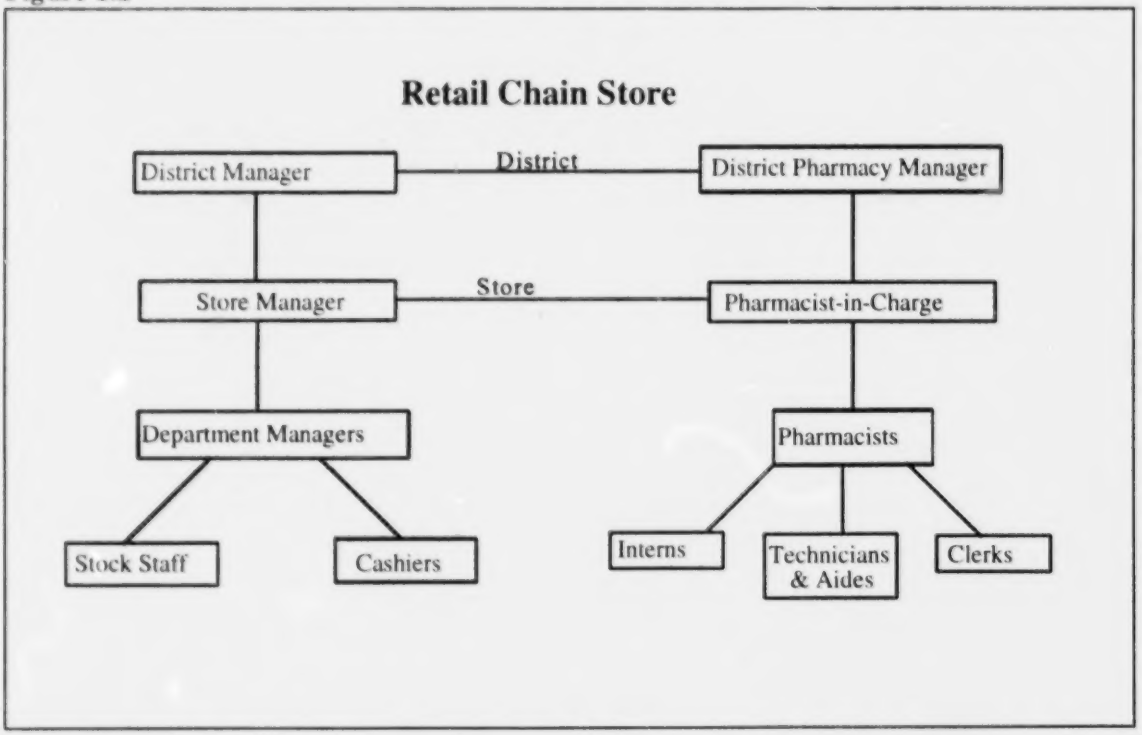


Figure 1.2



Lesson 1: The Pharmacy Industry

Activity Sheet

1. How are the terms "drug" and "medication" used differently in the pharmacy?

_____

_____

_____

2. How are the terms "patient" and "customer" used differently in the pharmacy?

_____

_____

_____

3. What are the three types of pharmacy practices discussed in the text?

a. _____

b. _____

c. _____

4. Complete the following chart.

Position	Responsibilities	Education Center or Training
Pharmacist		
Pharmacy Technician		
Pharmacy Aide		
Clerk		

5. Who does the pharmacy aide report to when coming to work?

_____

6. Define the terms pharmacology, pharmaceutics and pharmacokinetics. Use a medical dictionary to expand your knowledge of these terms.

_____

_____

_____

_____

7. List the two positions most likely to be immediately above the pharmacy aide in the hospital pharmacy chain of command.

a. _____

b. _____

Clinical/Laboratory Activities

1. Check the want ads in the newspaper for opportunities in pharmacies. How many advertisements are there for pharmacists? How many for pharmacy support staff? Are they part-time or full-time positions? What types of pharmacies are advertising for people to fill jobs? Are salaries mentioned?

_____

_____

_____

2. Check the yellow pages of the phone book under "pharmacies." How many are independently owned? How many chain pharmacies are in the phone book?

_____

_____

_____

3. Interview the team members at your clinical site. Compare their job descriptions to the ones in this lesson by making a chart describing each type of worker and his or her duties. Are any duties performed that are not discussed in this lesson?

_____

_____

_____

4. Ask to see your clinical site's organizational chart. Who would be your supervisor if you were employed as a pharmacy aide?

_____

_____

_____

Lesson 2: Ethics

Objectives:

A. Identify the importance of maintaining patient confidentiality.

B. Identify consequences of breaching patient confidentiality.

C. Differentiate between ethical and unethical decisions .

D. Identify the work habits and physical characteristics of a professional pharmacy aide.

E. Identify the impact of the pharmacy aide's work ethics.

Patient Confidentiality

Patients rely on pharmacists for medications and medication information. In order to accurately and safely care for patients, pharmacists must obtain information and maintain records about patients. This information is often used by the support staff as well. It should be held in strictest confidence. Providing information about patients to an uninvolved person, even by accident, is a breach of patient confidentiality. It is extremely important for patients to be assured that they can trust their pharmacist and staff.

There are a wide range of consequences for breaching patient confidentiality. Embarrassing a patient by announcing over the store public address system that a prescription for a laxative is ready has fairly minor consequences, although the customer may decide to take his or her business elsewhere. More serious consequences could arise if a patient's medication use records indicate a substance abuse problem, and the patient's employer obtains his or her prescription records from the pharmacy. By revealing this information, you may be jeopardizing a patient's career. Insurance companies may have a legitimate need to obtain prescription record information, but it is never the role of the pharmacy aide to provide that information without specific authorization.

It would seem that avoiding a breach of confidentiality would be easy. It is a good habit to always ask for permission from the pharmacist or the patient before giving **ANY** information to another person. The pharmacy aide should **NEVER** talk with family or friends about prescription information, or the insurance or financial records that were seen during the workday.

A more common problem is accidental breach of confidentiality. Patient care should never be discussed in a public place like the cafeteria, an elevator, or the lobby of the hospital. Others might overhear the confidential information even when discussed in low tones. Questions about a patient or a prescription should not be shouted across the pharmacy department.

It is sometimes hard to decide if some behavior is ethical or not. A rough guideline to help you to determine whether a decision is ethical or not is summarized below.

A decision is ethical if:

- It enhances self-respect.
- It develops personal integrity.
- It builds genuine confidence in self and others.
- It maintains confidentiality and exhibits respect.

A decision is unethical if:

- It brings harm to others.
- It is illegal.
- It exploits, belittles, or embarrasses people.
- It is disrespectful.

Developing Professional Work Habits

Personal grooming is essential in pharmacy practice. Cleanliness is very important because of the close contact that you have with other people all day. Pharmacies dispense medications that people will take orally, and patients must feel confident that their medication is sanitary. This issue becomes even more important when the pharmacy is dispensing sterile products for intravenous use.

A soapy shower or bath each morning before work is important. A simple hair style without excessive decoration is best. Makeup, manicures, and clothing should be conservative. Since bending, lifting, and standing are likely to be part of the day, clothing should be appropriate to allow these activities. Often, pharmacy personnel spend much of the day on the telephone and something as small as choosing comfortable earrings can affect how well the workday goes.

Some pharmacies prefer that support staff wear uniforms or lab coats over their clothing. Hose or socks are nearly always required because of health laws and safety issues. Shoes should be appropriately chosen for comfort when standing for long periods of time. Each pharmacy has individual policies but they always stress cleanliness and neatness.

A business-like appearance means that you do not eat food or drink beverages in front of customers. Many pharmacies prohibit snacks or drinks in the department. You should not chew gum or eat candy while on duty. The sound of chewing gum or sucking on candy is impolite on the telephone.

Support staff are important in the operation of the pharmacy. Arriving at work on time is vital--people are counting on you! Your training means that it may be difficult to find another employee to cover for you, so absences are likely to cause difficulties for your coworkers.

Attitude

The ability to express oneself determines the impression made on others. A worker whose posture is slouched and whose voice is so low as to be inaudible is unlikely to create an atmosphere of confidence for the patients. A worker whose voice is loud and whose laughter is inappropriate may end up making the patients feel as if their problems are not being taken seriously. The best attitude to project is friendly and professional competence.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 2: Ethics

Activity Sheet

1. Explain why it is important to maintain patient confidentiality.

   _____

   _____

2. List two possible consequences of breaching patient confidentiality.

   a. _____

   b. _____

3. List two examples of how an aide could accidentally breach patient confidentiality.

   a. _____

   b. _____

4. List four characteristics a professional pharmacy aide should possess.

   a. _____

   b. _____

   c. _____

   d. _____

5. List two positive and two negative ways a pharmacy aide's work ethic could have an impact on the pharmacy's business.

   a. _____

   b. _____

   c. _____

   d. _____

Clinical/Laboratory Activities

1. Role-play the following situations with a partner or your clinical supervisor. Use the criteria discussed in this lesson for measuring ethical and unethical decisions to explain your decisions.

   a. A football coach asks you to check prescription records to see if one of the players has a seizure disorder.

   b. Your best friend's mom wants to know if her daughter is using birth control pills. Would the situation be any different if she wanted to know if her son was buying condoms?

Lesson 3:
Missouri Pharmacy Law

Objectives:

A. Match state regulatory agencies with their roles.

B. Identify the duties of the Missouri State Board of Pharmacy.

C. Identify components of the Missouri Pharmacy Practice Act that apply to the pharmacy aide.

D. Identify components of the Missouri Pharmacy Practice Act that regulate dispensing of drugs.

Key Terms:

- Missouri State Board of Pharmacy
- Board of Healing Arts
- Board of Nursing
- Missouri Department of Health
- Bureau of Narcotics and Dangerous Drugs (BNDD)
- Prescriber

Some laws and regulations that affect the practice of pharmacy are written and enforced by federal agencies. States also regulate the practice of pharmacy. State laws and regulations are intended to make the law respond to the needs of practitioners in the state.

State Regulatory Agencies

The **Missouri State Board of Pharmacy** is the main agency that oversees the practice of pharmacy in Missouri. Other agencies regulate health practitioners who write prescriptions, administer drugs, or store medications. **The Board of Healing Arts** is responsible for the examination and licensure of individuals to practice as physicians and surgeons and to register each person who is licensed. **The Board of Nursing** adopts and revises rules and regulations necessary to affect the provisions of the Nursing Practice Act, provides minimum standards for nursing education programs, and accredits nursing programs. **The Missouri Department of Health** is responsible for the functions of various state social welfare and health delivery agencies. Since most community pharmacies are businesses, agencies that regulate commerce or trade must be consulted and the pharmacy must also comply with their rules. **The Missouri Bureau of Narcotics and Dangerous Drugs (BNDD)** is a state agency in the Missouri Department of Health that regulates the use and dispensing of controlled substances. State laws in this area supersede federal law, so the aide should know that controlled substances are regulated differently in different states. This may be important for aides who live near state boundaries, move, or commute to a practice in another state.

Missouri State Board of Pharmacy

The Missouri State Board of Pharmacy consists of seven persons. Six are pharmacists, and one is a public member who is not connected with the practice of pharmacy or medicine in any way. The members cannot be connected with a school or college of pharmacy. They are appointed to five-year terms by the governor. The duties of the Board are to:

- Examine and license applicants.

- Issue licenses for pharmacists, pharmacies, drug distributors, and intern pharmacists.
- Accredit pharmacy colleges.
- Renew the licenses of qualified pharmacists, pharmacies, drug distributors, and intern pharmacists.
- Discipline the licenses of any pharmacist, pharmacy, drug distributor, or intern pharmacist found to be in violation of Missouri law.
- Inspect pharmacies and drug distributors within the state.
- Inspect and certify pharmacies for intern training pharmacies.

The laws and rules that affect pharmacy practice in Missouri are published and updated annually in a bound manual issued by the Board of Pharmacy. This book has a long and cumbersome title--*Laws of the State of Missouri Relating to Pharmacists, Pharmacies, Drug Distributors and Intern Pharmacists*. Since the cover of the book is red, most pharmacists call it "The Red Book." This book can be found in all pharmacies. One of the most important parts of the book is the very first entry. This entry defines the practice of pharmacy and defines the responsibilities of the pharmacist in assigning and supervising the activities of support personnel. Missouri has defined the practice of pharmacy in a very broad and modern way, allowing pharmacists to develop advanced pharmaceutical care services and still practice within the scope of pharmacy practice.

The definition of pharmacy practice in Missouri also gives pharmacists broad capabilities to assign many different tasks to support personnel, while retaining ultimate responsibility for their actions. This flexibility is helpful since there are fewer specific guidelines and rules that may be inappropriate for all the possible combinations of pharmacists, pharmacies, and support staff. For pharmacy support staff, this type of rule makes it possible for a support person to learn many different aspects of pharmacy practice, rather than being told that a particular task cannot be mastered by a trained aide or technician because the laws will not allow it to be taught to you. Because of overly restrictive state laws, aides and technicians in some states are not allowed to place a prescription label on a container or learn any of the aspects of sterile product compounding. Support staff in Missouri can help with many aspects of pharmacy practice, but the pharmacist retains responsibility for the drug product and the patient's outcome.

Missouri Pharmacy Practice Act

There are components of the Missouri Pharmacy Practice Act that do explicitly spell out some aspects of drug dispensing. These aspects are tightly regulated and include:

- Labeling of prescriptions and containers.
- Filling prescription orders.
- Clearly defining physical aspects of the pharmacy.
- The Missouri State Board of Pharmacy regulating the storage of drugs, ensuring that drugs are secure and stable while stored in the pharmacy.

Consequently, all aspects of the Missouri Pharmacy Practice Act affect the daily duties of the pharmacy aide. Your clinical supervisor will provide guidance on how your pharmacy manages the aspects of pharmacy practice that are tightly regulated by the Board. You should know

that all pharmacies are inspected by the Board on an annual basis to ensure that they are in compliance with the rules and laws that govern pharmacy practice.

The term **prescriber** is often used in discussions of pharmacy law. A physician is most obvious type of prescriber. In Missouri, there are many other types of prescribers as well. Dentists, podiatrists, some optometrists, and some specially trained nurse practitioners may write prescriptions in Missouri. Most non-physician prescribers are limited in their prescriptive authority. For example, dentists frequently use antibiotics, pain medications, anti-anxiety agents, and anesthetics in their practice. A prescription for a high blood pressure medication would be questioned if it came from a dentist. On the other hand, nurse practitioners in a health clinic for the elderly might prescribe antihypertensive medications often, but prescriptions for prenatal vitamins would be outside of their practice. There should always be a care giver/patient relationship between the prescriber and patient. A common ethical problem occurs when a person asks a friend or acquaintance who has prescriptive authority to write prescriptions for medications. This is a very unsafe practice and is highly discouraged.

When it comes to discussions of laws regulating pharmacy, the most important thing for the aide to know is that each pharmacy uses individual policies to make sure that laws and regulations concerning both controlled substances and all prescriptions are followed carefully. If the pharmacy policies are followed carefully, the aide is unlikely to have problems relating to either federal or state law.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 3: Missouri Pharmacy Law

Activity Sheet

Match the agency with its role.

____	1. Oversees the practice of Pharmacy in Missouri.	a.	Board of Healing Arts
____	2. Regulates the use and dispensing of controlled substances.	b.	Board of Nursing
____	3. Adopts and revises rules and regulations necessary to effect the Nursing Practice Act.	c.	Bureau of Narcotics and Dangerous Drugs
____	4. Examines and licenses individuals to practice as physicians, registers each person who is licensed.	d.	Department of Health
____	5. Responsible for the functions of various state social welfare and health delivery agencies.	e.	Missouri State Board of Pharmacy

6. What are the duties of the Missouri Board of Pharmacy?

_____

_____

_____

7. How often does the Missouri Board of Pharmacy publish the "Red Book"?

_____

8. Who decides what tasks can be performed by a pharmacy aide?

_____

9. What components of the Missouri Pharmacy Practice Act regulate drug dispensing?

_____

_____

_____

Clinical/Laboratory Activities

1. If a pharmacist works at a poison control center and never fills a prescription, is he or she a practicing pharmacist? Discuss with your clinical advisor some possible situations where a pharmacist might practice pharmacy without filling prescriptions.

2. Locate the "Red Book" at your clinical site and read the introductory paragraphs.

3. Referring to the "Red Book," list at least five specific duties of a pharmacist listed in the definition of pharmacy practice.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

Lesson 4:
Federal Regulatory Agencies and Acts Affecting Pharmacy Practice

Objectives:

A. Match federal regulatory agencies with their roles.

B. Identify the purpose of the Food, Drug and Cosmetic Act and its impact on pharmacy practice.

C. Identify the purpose of the Controlled Substances Act and its impact on pharmacy practice.

D. Identify the purpose of the Poison Prevention Packaging Act of 1974 and its impact on pharmacy practice.

E. Identify OSHA regulations related to the pharmacy.

F. Identify the purpose of The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and its impact on the pharmacy practice.

Key Terms:

- Food and Drug Administration (FDA)
- Food, Drug, and Cosmetic Act
- Efficacy
- Pharmaceutical manufacturer
- Drug Enforcement Administration (DEA)
- Occupational Safety and Health Administration (OSHA)
- Controlled Substances Act (CSA)
- Poison Prevention Packaging Act (PPPA)
- Material Safety Data Sheet (MSDS)
- Hazard Communication Standard
- Hazardous chemicals
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

Federal Regulation of Pharmacy

Several federal agencies regulate aspects of pharmacy practice. The pharmacy aide should be aware of the impact these regulations have on the everyday practice of pharmacy and the work environment.

The Food and Drug Administration

The **Food and Drug Administration (FDA)** was established to protect the health of the nation against impure and unsafe foods, drugs, cosmetics, and other potential hazards. **The Food, Drug, and Cosmetic Act** extended FDA regulatory power to cover cosmetics and medical devices, require the approval of new drugs, require that tolerance levels be set for poisonous substances, and authorize inspections of factories where regulated products are manufactured. Later, the FDA added an emphasis on effectiveness as well. No manufacturer is allowed to make a claim of effectiveness against a disease without submitting proof to the FDA that the drug is both *safe* and *effective*. Generally, the burden and expense of proving safety and effectiveness, or **efficacy**, is on the pharmaceutical manufacturer.

The development of new drugs is almost always initiated by **pharmaceutical manufacturers**. Pharmaceutical manufacturers work with medical research teams in order to study the effects of new drugs on patients. The results of these research studies are evaluated very carefully by physicians and pharmacists who work for the FDA. The FDA approves drugs for sale in the United States. Before approving a new drug, the FDA professionals must be convinced that the drug is safe and effective for the diseases that it is supposed to treat. This process is necessary in order to protect patients from receiving medications that may have dangerous side effects or fail to treat the disease effectively.

The Drug Enforcement Administration

One might think of the **Drug Enforcement Administration (DEA)** as a police agency fighting the war on drugs. However, a large part of the DEA regulates the everyday access of controlled substances through legal channels of distribution. The distribution and transportation of controlled substances are tightly controlled from the manufacturer, to the wholesaler, to the pharmacy, and ultimately, to the patient. Each step of the process is documented carefully, so that an inspector from the DEA can trace controlled substances and know the names of all professionals and support personnel involved in the process. Some steps in the process are duplicated so that the trail is always intact. The pharmacy aide will need to know which documents the aide is allowed or required to sign. The pharmacy aide also needs to know where controlled substances are stored in the pharmacy and which personnel have access to these areas.

Occupational Safety and Health Administration

The **Occupational Safety and Health Administration (OSHA)** develops and promulgates occupational safety and health standards, develops issues and regulations, conducts investigations and inspections, and issues citations for noncompliance with safety and health standards and regulations. OSHA regulations are discussed in detail later in this lesson.

Controlled Substances Act

The **Controlled Substances Act (CSA) of 1970** is the name of the group of laws that regulate controlled substances. The DEA enforces the CSA. The CSA divides substances into five groups called "schedules." Sometimes the schedules are also called "classes," and the abbreviations C-I through C-V are used. Each schedule has different regulations and controls. Drugs are classified into schedules based on their likelihood of being abused.

•Schedule I (C-I) - Drugs which have no accepted medical use in the United States or have a high potential for abuse or are likely to be unsafe for medical use are included in this schedule. Examples are heroin, marijuana, and LSD (lysergic acid diethylamide).

•Schedule II (C-II) - Drugs with high potential for abuse and psychological or physical dependence are included in this schedule. Examples are amphetamines, cocaine, codeine, hydromorphone, meperidine, methadone, morphine, and opium. Schedule II substances are the most tightly controlled of the medications that are used in everyday practice.

•Schedule III (C-III) - These drugs have less potential for abuse than schedules I

and II. C-III includes those drugs with a high psychologic dependence and low to moderate physical dependence. Paregoric is an example. Some Schedule II substances may be in Schedule III if they are present in combination with another drug and are therefore present in small quantities. Acetaminophen with codeine is an example.

•Schedule IV (C-IV) - Drugs in this category have less potential for abuse than drugs in schedule III and have limited psychologic and physical dependence. Examples are chloral hydrate, phenobarbital, and benzodiazepines.

•Schedule V (C-V) - These drugs have less potential for abuse than drugs in C-IV. These drugs are often found in combination with other agents. Examples are Lomotil® (diphenoxylate and atropine) and cough medications with codeine.

Usually, Schedule C-III and C-IV drugs are handled in a similar manner in retail pharmacy practice. Since more employees may have contact with controlled substances in hospitals and nursing homes, these types of facilities often treat all controlled substances identically to prevent drugs from being stolen.

Poison Prevention Packaging Act

The **Poison Prevention Packaging Act (PPPA) of 1974** requires that household substances be packaged for consumers in child-resistant packaging. Household substances include many everyday cleaning and gardening products as well as medications. The child-resistant packaging may inconvenience some people, but the pharmacy aide should be aware of the extraordinary success that the PPPA has had in decreasing accidental poisonings in children under five years old.

In some situations, drugs may be dispensed in packaging that is not child-resistant. If the prescriber or the patient requests an easy-to-open cap, this request may be submitted in writing and treated as a blanket request for all medications for that patient. The patient profile should be scanned to determine if there are young children in the home and that appropriate precautions have been recommended if so. A few drugs are exempt from the child-resistant packaging because of their special uses. For instance, patients who need sublingual nitroglycerin for angina must have access to the drug in a hurry, and child-resistant packaging might delay prompt treatment of chest pain. Since oral contraceptives are packaged in a way to assist the patient in complying with the therapy, the package may not comply with the PPPA.

Manufacturers are also allowed to market one size of their over-the-counter medications in packaging that is not child-resistant as long as the packaging is labeled appropriately. For example, acetaminophen (Tylenol®) can be purchased in 325 mg, 100 tablet bottles with easy-to-open caps. The packages are labeled "This package for households without young children."

The PPPA prohibits the reuse of child-resistant prescription containers. The wear and tear of prolonged use can cause these packages to lose their effectiveness in keeping children from opening them.

OSHA Regulations

As stated earlier, OSHA regulations are designed to help keep workers safe while on the job. For the pharmacy aide, OSHA regulations may require that certain procedures be followed to minimize the risk of falls or back injury when working with stock. The pharmacy aide should also be

aware of possible problems with repetitive stress injury from improper use of keyboards and other electronic equipment. OSHA also has regulations on the potential for injury or illness caused by contact with chemicals in the workplace. Hazardous chemicals are products that pose a danger to people or the environment. All employees in the United States are covered by the **Hazard Communication Standard**. This standard is known as a "right to know" law. This law dictates that employees have a right to know about health hazards in the workplace and how to protect themselves from these hazards.

Employers must establish a written hazard communication program for the workplace. This document provides information that will help employees protect themselves from injury or illness caused by contact with hazardous chemicals. The employer must also provide a copy of the OSHA Hazard Communication Standard to each employee. The overall program must provide information in all of the following areas.

List hazardous chemicals used within the workplace - Chemical manufacturers are required to label their products to alert the user to any hazardous contents. The products must be accompanied by a **Material Safety Data Sheet (MSDS)** which provides highly specific information about a particular hazardous chemical, such as the threat it poses to an employee's health and the treatment for accidental exposure. An MSDS also contains 24-hour telephone numbers, information on labeling chemicals, and recommendations for personal protective equipment that should be used when working around specific chemicals. All products at the workplace that contain hazardous materials must be included on the list.

Minimize hazards of performing nonroutine tasks - Employees within a workplace are sometimes required to perform tasks that are outside their normal routine. Such tasks may include cleaning up spilled chemicals. Special training on chemical hazards and safety precautions must be provided to employees before they undertake a non-routine task. In pharmacy, some sterile products for cancer chemotherapy fall under the definition of a hazardous chemical. Special training is needed to work with these chemicals safely.

Protect all employees equally from hazardous chemicals - The possibility of occupational exposure to chemicals applies to all employees, even those who work part-time or on contract.

Describe labeling methods - Labels must describe the identity of the chemicals that may cause a health hazard, provide the name and address of the manufacturer, and provide hazard warning such as flammable, toxic, etc. If a hazardous chemical is repackaged from a bulk container into a dispenser or spray bottle, the smaller container must also be labeled. An easy way to do this is to photocopy the original label. This information may also be handwritten and taped to the secondary container.

Collect and maintain Material Safety Data Sheets (MSDS) - Chemical manufacturers must develop MSDS for each chemical they sell and provide them to the users of the products. Employers must obtain and file the MSDS for all hazardous chemicals they keep in the workplace. Employees must know the location of the MSDS file, and it must be accessible to all employees. A hospital pharmacy department always maintains the MSDS for its own chemicals, and it may also be responsible for maintaining these records for the entire hospital. Because the

information on MSDS can be very technical and complicated, employers are required to train employees on how to read and use the information provided on MSDS. See an example of an MSDS in Figure 4.1.

MSDS that are in compliance with OSHA regulations have eight sections. These eight are listed below.

1. Manufacturer Information
2. Hazardous Ingredients/Identity Information
3. Physical/Chemical Characteristics
4. Fire and Explosion Hazard Data
5. Reactivity Data
6. Health Hazard Data
7. Precautions for Safe Handling and Use
8. Control Measures

Train employees regarding hazardous chemicals - Employers must provide initial training on possible hazards employees may encounter before performing duties that would place them in contact with potentially hazardous chemicals. All employees must be trained when new chemicals come into the workplace. Annual re-training is required as well.

Describe how employees are protected from chemicals whose ingredients are trade secrets - Some manufacturers claim that the contents of their products are trade secrets. The MSDS may not contain the name of the chemicals, but it must contain all the other relevant information.

Hazardous chemicals are defined below. For each category, an example of a chemical that may be used in pharmacy is listed in parentheses.

A hazardous chemical:

- Is flammable (absolute alcohol and isopropyl alcohol).
- Is reactive, acts with other chemicals to produce a hazard (acids and bases).
- Is explosive (absolute alcohol).
- Is corrosive, which means it has a caustic and locally destructive effect on other surfaces (sulfuric acid and hydrochloric acid).
- Is toxic or poisonous (cleaners).
- Is carcinogenic, which means it is a substance that causes cancer (chemotherapy agents and some anti-viral agents).
- Is radioactive, which means it emits high energy particles that can damage living cells (not found in typical pharmacy practice).

Some chemicals are exempt from the Hazard Communication Standard. It is important for the pharmacy aide to know these exceptions.

Exceptions include:

- Any chemical described as a drug by the FDA that is in its solid final form and is ready for administration to patients.
- Cosmetics intended for personal use by employees.
- Consumer products such as cleansers, which are used in the workplace as they would be in a private home.
- Tobacco products.
- Wood products.
- Food and alcoholic beverages.

OSHA regulations also protect workers who may be exposed to blood borne pathogens. The viruses that cause hepatitis B and AIDS are transmitted by blood and body fluids. Pharmacy aides virtually never come into close enough contact with patients to require in-depth discussion of these regulations in this lesson, but most employers provide on-the-job training about

Fig. 4.1 - Material Safety Data Sheet (MSDS)

(Front)

MATERIAL SAFETY DATA SHEET

1.1 Product Trade Name: Hoodgard 1
1.2 Part (Item) Number:

SECTION I

1.3 Division Name	Lab Safety Corporation
1.4 Address	5630 N. Elston Ave Chicago, IL 60646
1.5 Emergency phone number	1-800-433-7698
1.6 Phone number for information	
1.7 Date prepared	

SECTION II - Hazardous Ingredients

Hazardous Mixtures of Other Liquids, Solids, or Gases	**%**
n - alkyl dimethyl benzyl ammonium chlorides	11
n - alkyl dimethyl ethylbenzylammonium chlorides	11

SECTION III - Physical Data

3.1 Boiling point	212	**3.6 Specific Gravity**	1.01
3.2 Vapor pressure	18 mm	**3.7 Melting point**	95%
3.3 Vapor density	0.6	**3.8 Evaporation rate**	1.0
3.4 Solubility in water	Complete		

3.5 Appearance and odor: Scented Clear Liquid

SECTION IV - Fire and Explosion Hazard Data

4.1 Flush point (method used) None
4.2 Flammability (explosive limits)
LEL: N.A. **UEL:** N.A.
4.3 Extinguishing media N.A.
4.4 Special fire fighting procedures Keep containers cool. Use shielding to protect personnel against bursting, rupturing, or venting containers.
4.5 Unusual fire and explosion hazards: Containers may burst at elevated temperatures (above 120°F) rupturing or venting may also occur above this temp.

SECTION V - Reactivity Data

5.1 Stability: **Unstable:** **Stable:** X
5.2 Conditions to avoid (stability): Mixing with bleach or other cleaning compounds
5.3 Incompatibility (materials to avoid):
5.4 Hazardous decomposition or byproducts: CO or CO_2 may form upon combustion
5.5 Hazardous polymerization **May occur:** **Will not occur:**
5.6 Conditions to avoid (polymerization)

SECTION VI - Health Hazard Data (Back)

6.1 Route(s) of entry: **Inhalation?:** **Skin?:** **Ingestion?:**
6.2 Health hazards (acute and chronic):
6.3 Carcinogenicity NTP?: **IARC monographs?:**
OSHA regulated?:
6.4 Signs and symptoms of exposure: May cause eye irritation. May cause skin irritation.
6.5 Medical conditions generally aggravated by exposure:
6.6 Emergency first aid procedures: Flush with water. Call a physician.

SECTION VII - Precautions for safe handling and use

7.1 Steps to be taken in case material is released or spilled: Provide adequate ventilation. Mop up spills, then rinse with water.
7.2 Waste disposal methods: Do not puncture or incinerate containers. Give to a disposal service equipped to safely handle and dispose of pressurized containers.
7.3 Precautions to be taken in handling and storage: Do not store where temperature exceeds 120°F.
7.4 Other precautions: Avoid breathing vapors. KEEP OUT OF REACH OF CHILDREN. READ ENTIRE LABEL BEFORE USING.

SECTION VIII - Control Measures

8.1 Respiratory protection	None required
8.2 Ventilation	None required
8.3 Protective Gloves	None required
8.4 Eye protection	Safety glasses

8.5 Other protective clothing or equipment: None required
8.6 Work/Hygienic practices Provide adequate ventilation. Mop up spills, then rinse with water.

Courtesy of Lab Safety Corporation, Chicago, IL

Form OSHA-20
Rev. May 72

BEST COPY AVAILABLE

the OSHA Bloodborne Pathogen Standard. Pharmacy aides in hospitals may notice the biohazard labeling on trash or laundry containers or bags outside patient rooms. Hepatitis B is a serious, life-threatening disease which is completely preventable with immunization. In fact, hepatitis B immunizations are now given to infants as part of the routine series of immunizations. It is highly recommended that all workers in health fields complete hepatitis B immunizations, whether or not they are likely to be exposed on the job. In many cases, the cost of the vaccination is paid by the employer or is part of health insurance benefits.

Joint Commission on Accreditation of Health Care Organizations

The **Joint Commission on Accreditation of Health care Organizations (JCAHO)** is not a government agency, but it is important in the everyday practice of pharmacy in hospitals, nursing homes, and home-care pharmacy. JCAHO requirements establish a minimum level of quality in the provision of health care services. Many insurers, including Medicare, will not pay for services rendered by a nonaccredited hospital or nursing home. Even though the Joint Commission does not have the power to close a facility, JCAHO can make it impossible for the facility to stay in business. The pharmacy aide may assist in some record keeping functions that are required by JCAHO. Initial and annual training on various aspects of health care are required by the Joint Commission. The pharmacy aide should cooperate by participating and recording these sessions.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

After you have completed the activity sheets, you may take the written unit evaluation. A score of 80 percent indicates that you may proceed to the next unit. Review any materials incorrectly answered.

Lesson 4: Federal Regulatory Agencies and Acts Affecting Pharmacy Practice

Activity Sheet

1. List the two characteristics of an FDA approved drug.

_____

_____

Match the function or area of regulation to the agency. More than one answer may be correct.

2.____JCAHO	a. Dictates that a lumbar back support belt be used for lifting.
3.____DEA	b. Dictates controlled substances be inventoried every two years.
4.____OSHA	c. Reviews research on new drugs, or new uses for old drugs.
5.____FDA	d. Dictates annual training on hazardous substances.

6. Describe how the Poison Prevention Packaging Act affects the practice of pharmacy.

_____

_____

_____

7. List three OSHA regulations that relate to work in a pharmacy.

a. _____

b. _____

c. _____

8. List three of the five classes of controlled substances and give an example of a drug in each class.

a. _____

b. _____

c. _____

9. List three areas of information that must be included in the written hazard communication program provided by an employer.

   a. _____

   b. _____

   c. _____

10. List three ways an employee may determine whether a product contains a hazardous chemical.

    a. _____

    b. _____

    c. _____

Clinical/Laboratory Activities

1. Locate the MSDS and OSHA poster at your clinical site.

2. What should be your response in the following situation?

   Your supervisor, Pharmacist Samson, comes out of the IV compounding area holding his eyes. Tears are streaming down his face, and he says that he just sprayed Hoodgard® into his eyes by accident. You are the only other person in the pharmacy -- what should you do to help?

   After you discuss how to handle the acute situation with your clinical supervisor, be sure to discuss any other reporting action that should be taken with both your instructor and your clinical supervisor.

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: The Pharmacy Industry Rating _____

Comments: _____

_____

_____

Activity Sheet: Ethics Rating _____

Comments: _____

_____

_____

Activity Sheet: Missouri Pharmacy Law Rating _____

Comments: _____

_____

_____

Activity Sheet: Federal Regulatory Agencies and Acts Affecting Pharmacy Practice Rating _____

Comments: _____

_____

_____

Unit Evaluation Score _____

Additional comments: _____

_____

_____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

Unit II

Communication Skills

The pharmacy aide has direct contact with customers and is often responsible for answering the pharmacy phone. For these reasons, the pharmacy aide must be able to communicate effectively in a professional manner. Unit II contains information on how to communicate effectively with both customers and coworkers.

Unit Lessons

Direct Customer Assistance

Telephone Customer Assistance

Interacting with Coworkers

Lesson 1:
Direct Customer Assistance

Objectives:

A. Identify the negative and positive impact of verbal and nonverbal communication.

B. Greet customers properly.

C. Determine if the pharmacy aide can assist the customer or needs to refer the customer to someone else.

D. Assist customer in locating items within the pharmacy.

E. Identify techniques for handling difficult situations.

F. Gather information needed at initial patient contact.

G. Identify appropriate remarks for completing the patient interview.

H. Ensure that the patient has access to information about medications.

There are many opportunities for communication in the pharmacy aide's day. Greeting customers, asking the pharmacist questions about new orders, answering the telephone, and placing business calls are typical responsibilities of a pharmacy aide.

Verbal and Nonverbal Communication

Communication is the meaningful exchange of information, ideas, thoughts, and feelings. Verbal communication is achieved through spoken words. When effective, it brings about a mutual understanding between the participants. Inflection and quality of voice add to the overall exchange. Communication does not only involve spoken words.

Nonverbal communication is a way of communicating without words. Facial expressions, gestures, posture, and distance between the sender and receiver are all forms of nonverbal communication. Nonverbal communication can complement or conflict with the verbal message. For example, if your posture is slouched and you yawn while helping a customer, he or she may think you are bored or not interested in his or her needs. Although this may not be true, it is the message you have sent to the customer.

It is important for all pharmacy staff to be aware of the messages they are sending through verbal and nonverbal communication so that the receiver does not misunderstand the message. **Remember that a patient is always a customer for the pharmacy business.** Good communication between coworkers and business associates is also very important.

Greeting the Customer

The pharmacy aide will often be the first person to greet a customer. Communicating with customers in a friendly and professional way can enhance the relationship between the customer and the pharmacy and help to keep or build business. Interaction with customers can be a fun part of the workday. On the other hand, customers are not always receptive to the friendly intentions of the pharmacy staff. It should be acknowledged that patients with new prescriptions are often acutely ill and are probably not in a good mood. Patients who are seen repeatedly for maintenance medications may be challenged by a chronic illness. Elderly

customers may have further barriers to good communication such as hearing loss. It is important for the pharmacy staff to project a caring and professional attitude and not take it personally if customers seem unresponsive or unappreciative.

When greeting a customer, always give your complete attention, look the customer in the eye, speak in a pleasant tone of voice, and greet them as such, "How can I help you today?" **Customers are not an interruption in your work, they are the reason for your work**. If you cannot take care of their needs immediately, you should acknowledge them in a friendly way and say "I will be with you in a moment." After you finish the first duty, look the waiting customer directly in the eye and say something like, "Now, how can I help you today?" This should communicate that it is now their turn and you will not cheat them to hurry on to other duties. You should never keep a customer waiting while you finish a routine project like filing papers or dusting shelves. **Customers always come first**.

Assisting the Customer

It is important to quickly asses the customers' needs and then assist them or refer them to the person who can best do so. Often, there are subtle differences between the questions customers ask and their actual needs. For example, a customer may ask "Where is the Robitussin®?," and the pharmacy aide may be able to direct the customer to the right shelf. If a customer asks, "What do you have for a bad cough?" the pharmacy aide should direct the customer to the pharmacist for help in choosing the best remedy for a cough.

What if the pharmacist is busy with a prescription and cannot immediately help choose a cough medicine? The pharmacy aide may show the customer to the cough medicines but should **not** make any recommendation of a particular product. Instead, the aide should say, "Let me show you where the cough medicines are. If you need help choosing one, the pharmacist can help you make a choice when he or she is free."

The responsibilities of a pharmacy aide working in a small community store may be different than those of a pharmacy aide working in a large discount store. In large discount stores, customers may ask the pharmacy aide to locate items that are not part of the pharmacy. Although it may not be possible to keep up with every department in a large store, the aide may find it helpful to know where the baby formulas and any foods that might be helpful for diabetics are kept. The aide might also say to the customer, "I am not sure where the formula is kept, but I will be glad to call someone else to help you."

Keep in mind the following principles of effective communication when assisting the customer. These principles can also be applied when communicating with your supervisor and coworkers.

- Show interest.
- Take time to listen carefully.
- Use nonverbal communication to complement your message, not conflict with it.
- Use a pleasing tone of voice and speak distinctly and clearly. Remember that some patients may not be able to hear clearly.

Handling Difficult Situations

The aide should never be sullen or short with customers. Keep in mind that the hostile or uncooperative customer is usually not directing anger at you personally. You

can try following this pattern to help you develop a positive attitude toward handling difficult situations with customers.

- Listen to the customer's entire story, without interrupting. This strategy alone sometimes helps to defuse the situation.
- Echo the customer's points, showing that you heard the major issues and problems.
- Use a calm tone of voice and relaxed body language. Look the customer directly in the eye. This shows that you are listening and can handle the problem confidently.
- Do not make excuses. Excuses send two messages. "We may have done it, but it isn't our fault." and "We are sometimes out of control in this department." Neither of these messages is reassuring to the customer.
- Do not argue. Avoid rudeness or sarcasm at all costs.
- Do not minimize the problem. This can give the customer the impression that you do not think their problem is important enough for your concern.
- Try to assure the customer that you will find the problem's cause and prevent it from happening again.
- Resolve the problem as positively as possible.

It is likely that you will need to involve the pharmacist to help you at some point along the way. You should never try to handle a serious problem by yourself, such as an incorrectly filled prescription. If you can remember that a correctly handled critical moment can serve to improve customer relations, you can become more and more confident in your ability to help your customers and your pharmacy.

Gathering, Recording, and Confirming Information from Patients

The first step in obtaining information is to introduce oneself to the customer. Using the customer's name may be a way of personalizing service, but the pharmacy aide should never use the customer's first name unless invited to do so. The patient should be told the purpose of gathering the information needed. If the patient is going to give frank answers to the questions, he or she needs to feel that the pharmacy has a right to the information, and that the questions are appropriate.

"Good morning, Mrs. Jackson, I'm Teresa, the pharmacist's aide this morning. I need to ask you a few questions to make sure our records are up-to-date," is one way the aide can convey the importance of answering questions.

The middle part of the interview is when most of the information is obtained. Usually, the aide will be working from a standardized form or entering data directly into a computer terminal. Accuracy and legibility are extremely important. Decisions about the best course of action for the patient will be made based on this information. Speed is also important. The pharmacy aide may want to practice interviewing family members to test the speed and accuracy of his/her interview.

The aide should be careful to respect the patient's right to privacy and try to keep the answers to questions private. This can be done by speaking directly to the person being interviewed and by speaking no

louder than necessary. Another potential pitfall is reacting to information that the patient provides. The pharmacy needs accurate records of prescription and insurance information. If patients feel the aide is making judgments about them, they are unlikely to provide accurate information.

Here are some examples of statements to avoid:

- "Wow, I can't believe you have seven kids under the age of eight! No wonder you need tranquilizers."
- "You don't look like you're 68 years old!"
- "Oh, you worked at the shoe factory that closed -- do you still have insurance?"

The end of the interview may be introduced by assuring the patient that you are almost done asking questions and have just a few remaining. The patient should be allowed to comment on anything he or she thinks might have been omitted during the interview. Sometimes very valuable information is obtained at this time. It may be helpful to try to make the interview seem important to the patient at this point. If this is done, the patient feels that his or her time has been well-spent. The following are examples of how you might end the interview.

- "Thanks for answering all these questions. Since your insurance has changed, we need to update our files."
- "Thanks for answering all of these questions. The pharmacist always wants me to ask about over-the-counter medications when people are on warfarin, so she can check for interactions."

Providing Medication Information

The pharmacy aide can help the pharmacist ensure that the patient has access to information about the medication by stocking the pharmacy area with any pamphlets. The pharmacy aide can also offer the advice of the pharmacist. The pharmacist is required by law to offer to discuss the prescription with the patient. This is known as patient counseling. For lack of time or privacy, some patients do not want to discuss their medications while at the pharmacy. If written materials about the prescription are available, they may be provided when the medication is dispensed. Written materials do not take the place of the offer to counsel, but they are very useful patient education tools. Patients should be encouraged to read any material provided with the prescription and to call the pharmacist with any questions or problems. This is especially true if the patient refused patient counseling at the time the prescription was dispensed.

When saying good-bye to patients, it is best to avoid cliches like, "Have a nice day." That phrase probably would not offend someone if he or she was at the grocery store or the gas station. When a prescription has just been filled, however, the patient sometimes wonders how sincere that wish is, especially if the prescription indicates that the patient has a serious illness. "Thanks" or "Good-bye" is a much more appropriate ending.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 1: Direct Customer Assistance

Activity Sheet

1. List two examples of greetings that would be appropriate for addressing a pharmacy customer.

   a. _____

   b. _____

2. Give an example of a positive nonverbal message and a negative nonverbal message.

   a. _____

   b. _____

3. List one example of a situation when a pharmacy aide could assist a customer and another example when the aide would need to refer the customer to someone else for assistance.

   a. _____

   b. _____

4. What are three things you can do when handling difficult situations with customers?

   a. _____

   b. _____

   c. _____

5. List two things the pharmacy aide can encourage patients to do to ensure that they have access to information about medications.

   a. _____

   b. _____

6. List three things the aide should do when gathering initial information from a patient.

   a. _____

   b. _____

   c. _____

7. Give two examples of how you might close the patient interview.

   a. _____

   b. _____

Clinical/Laboratory Activities

1. Role-play the following situations with your instructor or a partner in class. Consider using these same situations with your clinical supervisor.

   a. A woman with a crying baby asks where to find the baby Tylenol®.
   b. A man with a crying baby asks, "What's good for a baby with a fever?"

   Did you handle these situations differently? What factors affected your decision? Discuss your answers.

2. Draw a map of the over-the-counter medication area of your clinical site.

3. After becoming familiar with the location of items in the pharmacy department, ask your clinical supervisor if you can direct customers to the location of items. Remember to clarify with your supervisor when you can offer assistance and when you need to get assistance from the pharmacist.

4. Practice role-playing the following situations with your clinical supervisor.

   a. New patient interview
   b. Existing patient interview
   c. Handling a customer complaint

Lesson 2: Telephone Customer Assistance

Objectives:

A. Answer the phone using proper technique.

B. Determine if the aide can assist the telephone customer or needs to refer the customer to the pharmacist.

C. Use proper techniques for placing the caller on hold.

D. Take phone messages properly.

E. Place business calls in a professional manner.

In most pharmacies, answering the telephone takes experience and training. The information in this lesson should complement the specific practices of your clinical site. It takes experience in each pharmacy to learn how to answer the phone and how calls should be handled. The aide must learn the most common types of calls before taking on the responsibility of answering the phone.

Telephone Techniques

The pharmacy aide is often responsible for answering the telephone during the workday. The aide should be pleasant at all times. Smiling before you pick up the phone, even though the caller cannot see you, will affect the tone of your voice. Phone calls should be answered on the first or second ring if possible. Use proper grammar and speak clearly. The only impression the caller has of you and your pharmacy is your voice and the words you choose to speak.

Hearing loss can make it difficult for some patients to understand questions and directions, especially when you are calling from a busy pharmacy. Speech disorders can also decrease communication. It is important to take these factors into consideration when you are communicating on the telephone.

Most pharmacies have a suggested phrase for answering the phone. Aides answering the phone should follow the method preferred by their pharmacy. The first step is usually to identify the pharmacy. This may be done by pharmacy name in a retail pharmacy or by department in a hospital pharmacy. The greeting should be fairly short and should be easy to pronounce clearly. In some departments, the aide is encouraged to introduce himself or herself by name and job title. An example of a possible greeting is, "Block Pharmacy. This is pharmacy aide Teresa. How may I help you?"

Technology is a big part of telephone communication in pharmacies. Telephones have hold, transfer, call-back, re-dial, conference and other features which should be mastered by the aide before the responsibility of answering the telephone is added. Fax machines and voice mail may be used, so the aide should learn any special procedures that are required to use these tools as well.

Most pharmacies organize the workload so that the employees who are working face-to-face with customers are not responsible for answering the telephone. If you must choose between helping a customer who is there in person and answering the telephone, you should usually concentrate on the person in your presence.

Personal phone calls should be kept to an absolute minimum while on the job. Personal phone calls distract you from your work and tie up a telephone line that should be used by customers or prescribers.

Types of Calls the Aide Can Handle

- **Patients inquiring about pharmacy hours and pharmacy location.**
- **Patients calling to see if their prescriptions are ready.** Put the patient on hold, check the pickup area, and return to the patient to let them know if the prescription is ready.
- **Patients calling in refills.** Record the refill information (patient and prescription number). Ask the patient for a phone number where they can be reached in case the pharmacist needs to contact them. Ask when they would like to pick up the prescription.

Types of Calls the Aide Cannot Handle

- **Calls from prescribers** - In fact, many pharmacies have a separate line for prescribers to use, and only pharmacists answer that line.
- **Calls for medication information, or emergency calls.** Refer these to a pharmacist immediately.
- **Calls from other pharmacies to transfer or confirm prescriptions.** Transfer these calls to the pharmacist.
- **Calls about prescription errors.** Transfer these calls to the pharmacist.

If you need to transfer the call to a pharmacist, simply state, "I will transfer you to pharmacist Jim Smith." Put the caller on hold and explain the nature of the call to the pharmacist. You can help the pharmacist handle the call by preparing any information needed. Pull records that may help, either on paper or on the computer screen.

"Hold, Please."

Putting callers on hold politely takes practice. The caller should be informed that you are putting him or her on hold and about how long he or she will be on hold. ALWAYS use the hold button and do not just place the handset on the pharmacy counter. If the line is open, the customer may overhear conversations in the pharmacy department that would breach patient confidentiality. Do not leave a customer on hold for longer than you said you would. Even if you do not have the answer yet, go back to the caller and explain the situation. When you take a caller off hold, thank him or her for waiting and answer their question.

Telephone Messages

If the pharmacist is unavailable, the aide should fill out a message slip. The message should contain the date and time of the call, the caller's name, and any message the caller leaves. If the caller would like a return call within a certain time, this should be indicated on the message slip. The following items should be included on a message slip (see Figure 2.1 for an example of a completed message slip).

- The name of the person with whom the caller wanted to speak
- The date of the call
- The time of the call

- The correctly spelled name of the caller (ask the caller to spell it if you are unsure)
- Place of business (if appropriate)
- Subject of the call (meeting notice, patient question, product, etc.)
- Any message the caller wanted to leave
- Your name (the person who took the call)
- Indication of whether the caller expects a return call or will call later

Fig. 2.1 - Example of Completed Message

TO: *Pharmacist Brown*

DATE: *Today* TIME: *10:40 A.M.*

BY: *Susan*

[ ] Please return call [X] Telephoned

[X] Will call again [ ] Returned your call

Name of caller: *Dr. Gail Heykman*

of: *City Hospital*

Phone: *678-9101*

Message: *Re: Patient Mrs. Linda Katz*

Placing Business Calls

When placing a business call, the pharmacy aide should identify himself or herself and state the reason for the call. The following is a an appropriate greeting when calling a patient. "Hello, Mr. White. This is Teresa from Block Pharmacy. I am calling to let you know that your prescription is ready."

If the patient is unavailable and his or her answering machine answers your call, do not state any confidential information. **Do not state the nature of your call.** Leave your name, the name of the pharmacy, and the telephone number of the pharmacy. An appropriate message may be, "Hello, Mr White. This is Teresa from Block Pharmacy. Please return my call at your convenience. The telephone number is 555-9180. Thank you."

Also, do not reveal confidential information to whomever may be taking the message for the patient. An appropriate message may be, "Hello. This is Teresa from Block Pharmacy. Will you please leave a message for Mr. White to return my call? The telephone number is 555-9180. Thank you." **If you give more information than is necessary to receive a return call, you may be breaching patient confidentiality.**

Additionally, always keep in mind that you may be calling a patient with limited hearing or a speech impediment. A patient with these or any other physical disabilities may find it challenging to answer the phone. The phone should be allowed to ring at least ten times. The aide should never become impatient or angry if this is the case.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 2: Telephone Customer Assistance

Activity Sheet

1. Fill in a message slip for each telephone call.

   a. Dr. Jo Jackson called at 3:15 p.m. to ask Pharmacist Jones to attend a meeting at the nursing home to review the home's policies about medications. The meeting is at 7:00 p.m. on Tuesday, April 2, and Pharmacist Jones should RSVP to her office (430/555-1212) by March 25.

   b. Joe MacKinnon called at 11:30 a.m. He is the Galaxio Pharmaceutical Company representative, and he wants Pharmacist Brown to meet with him at 9:00 a.m. tomorrow to discuss a new drug. If he does not hear back from Pharmacist Brown by 5:00 p.m. today, he will plan on stopping by for a 15 minute appointment. His car phone number is 730-6000, and his beeper is 730-6001.

TO: _____

DATE: _____ TIME: _____

BY: _____

☐ Please return call ☐ Telephoned

☐ Will call again ☐ Returned your call

Name of caller: _____

of: _____

Phone: _____

Message: _____

_____

_____

_____

TO: _____

DATE: _____ TIME: _____

BY: _____

☐ Please return call ☐ Telephoned

☐ Will call again ☐ Returned your call

Name of caller: _____

of: _____

Phone: _____

Message: _____

_____

_____

_____

2. Give two examples of appropriate greetings you might use when answering the pharmacy phone.

   a. _____

   b. _____

3. List two types of calls that the pharmacy aide should transfer to the pharmacist.

   a. _____

   b. _____

4. Why is it important to use the hold button when putting someone on hold instead of placing the handset on the counter?

   _____

   _____

5. How long should you allow the telephone to ring when placing a business call? Why?

   _____

   _____

   _____

Clinical/Laboratory Activities

1. Ask your clinical supervisor to provide an orientation to the pharmacy's telephone system. When appropriate, practice answering the phone to put callers on hold, transfer calls, place business calls, and leave messages. What greeting does your clinical site want you to use when answering the phone? Practice the greeting with a partner or family member.

2. With your clinical supervisor's approval, answer the pharmacy telephone.

3. After you gain experience and confidence in handling incoming telephone calls, ask your clinical supervisor if you can begin to place calls for the pharmacy.

Lesson 3:
Interacting with Coworkers

Objectives:

A. Identify the aide's role as a team member in the pharmacy.

B. Identify professional communication among coworkers.

C. Identify components of conflict resolution.

Key Terms:

- Conflict resolution
- Avoidance
- Mediation
- Mutual problem solving

Teamwork

Each player on a team contributes something important to the achievements of the team. This is true whether the objective is scoring soccer goals or running a safe and profitable pharmacy.

Whenever possible, pharmacy aides should help their pharmacy team achieve the ultimate goal of providing superior pharmaceutical care. For example, you can contribute by helping a customer when a coworker is busy, by helping to clean a spill in the pharmacy, or by answering the phone when you are free.

Additionally, team members can contribute to the team as a whole when they acknowledge each other's talents. By acknowledging your coworkers talents, you will build their confidence in their ability to assist the customer. Remember, the goal is to provide superior pharmaceutical care. Good working relationships are based on good communication skills.

Professional Communication Among Coworkers

In order to project a serious and professional environment, the pharmacy aide should avoid "chatting" with coworkers while working. Chat and communication are not the same. Chatting on the job can be detrimental to getting the work done. If the work doesn't get done in a pharmacy, there are serious consequences, which end up causing stress for everyone. As a new member of the working world, you should develop the reputation of giving 100+% effort at all times. Use the time during your breaks or lunch to get to know your coworkers. Furthermore, workers in a pharmacy must be extra careful to avoid the appearance of any horseplay in the prescription department. There is no tolerance for silliness in the pharmaceutical field.

Conflict Resolution

Coworkers usually try to maintain a pleasant working environment. However, when conflicts occur, good communication skills can make them easier to resolve. Conflicts are unavoidable when people work together and sometimes conflicts can be beneficial in the long run. There are three methods of **conflict resolution**. Depending on the situation, some are more effective than others.

Avoidance means to stay away from the source of the conflict. Keeping away from the person or situation that is the source may be effective in the short term or if the problem is temporary. Avoidance, however,

is usually not the best solution in the long run.

Mediation means that the advice of a neutral third party is used to offer possible solutions. Since it may be hard for a person at the same level in the organization to maintain objectivity, choosing a person who is one level higher in the organization is often appropriate. Choosing a person more than one level higher than yourself is usually inappropriate.

Mediation can be a helpful strategy in some circumstances when the two people who are disagreeing have so much hurt and anger built up that they are unable to be objective. One disadvantage to mediation is that the addition of a third person may be embarrassing to the people involved in the disagreement. It can also be time-consuming for several people to have to sort out every minor disagreement that arises during the workday.

Mutual problem solving occurs when both sides work together to resolve the conflict and come up with solutions that are mutually acceptable. It is easy to see that this technique has important advantages in the workplace. In many situations, the effort that both sides put into mutual problem solving benefits the people directly involved and the entire pharmacy staff.

The first step in conflict resolution is to try to work things out directly. Both people need to find a quiet place to discuss the problem or issue privately. Both people should present their positions on the issue and then brainstorm possible solutions to the problem. The feelings and opinions of the other person should always be considered. Together, a compromise is often reached that benefits both parties and the team as a whole.

Maintaining open communication channels with coworkers is a shared responsibility. With practice, effective communication becomes second nature.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

After you have completed the activity sheet, you may take the written evaluation. A score of 80 percent indicates that you may proceed to the next unit. Review any materials incorrectly answered.

Lesson 3: Interacting with Coworkers

Activity Sheet

1. Give two examples of how you would contribute to your pharmacy team.

   a. _____

   b. _____

2. What is the difference between communication and chat?

   _____

   _____

3. Define the three methods of conflict resolution.

   a. _____

   _____

   b. _____

   _____

   c. _____

   _____

Clinical/Laboratory Activities

1. Scenario: You work in a hospital pharmacy department where there are five pharmacy aides and one supervisor. One of the aides regularly asks you to trade hours so you work for her on Saturday afternoon and she works for you on Tuesday afternoon. You have done this four times and are starting to get sick of it. Role-play each of the possible conflict resolution strategies with a partner or your instructor. Ask your clinical supervisor and coworkers to role-play this situation as well.

2. For the above scenario, list two circumstances where the avoidance method of conflict resolution might be appropriate. List two circumstances where the mutual problem solving method would be best. List two circumstances where mediation would be best. Describe who in the organization would be the best mediator.

   Avoidance method:

   a. _____

   b. _____

   Mutual problem solving:

   a. _____

   b. _____

   Mediation:

   a. _____

   b. _____

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: Direct Customer Assistance Rating _____

Comments: _____

_____

_____

Activity Sheet: Telephone Customer Assistance Rating _____

Comments: _____

_____

_____

Activity Sheet: Interacting with Coworkers Rating _____

Comments: _____

_____

_____

Written Unit Evaluation Score _____

Additional Comments: _____

_____

_____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

Unit III

Pharmaceuticals

Unit III defines pharmacology, identifies factors used in selecting medications, defines monitoring parameters, and cites pharmacy references. The organization of a drug by its brand or generic name, route of administration, dosage form, location, and storage is also discussed in Unit III. You should become familiar with the pharmacy security measures outlined in this unit. Upon completion of this unit, you should be able to identify the measurement systems, convert measurements, and use measuring devices.

Unit Lessons

Pharmacology

Organization of Drugs in the Pharmacy

Measurement Systems

Lesson 1: Pharmacology

Objectives:

A. Define pharmacology.

B. Identify factors used in selecting medications for individual patients.

C. Match drug classifications with their uses.

D. Define monitoring parameters.

E. Identify and use reference books in the pharmacy.

Key Terms:

- Monitoring parameters

Pharmacology is the study of the composition, uses, and effects of drugs. This field of study links basic medical sciences like biochemistry, physiology, and pathology to more clinical areas of study that involve patients with disease.

The pharmacology of each drug is different. Drugs are grouped together in classes based on several different criteria. They can be sorted based on their effect on the body, their chemical structure, or their mechanism of action. The pharmacy aide should be aware that drug therapy is specifically chosen for the needs of the patient. The pharmacist may assist the physician in the choice of prescribed drug therapy. Also, the pharmacist often assists patients in choosing over-the-counter medications for self-treatment. The pharmacology of drugs is one aspect of choosing the right drug for the patient's problem.

Most pharmacists learn the characteristics and uses of a whole class of drugs and then tackle the job of learning the more subtle differences between each of the drugs in a class. For example, the class of antihypertensive medications (drugs to lower blood pressure) includes diuretic agents, which promote the excretion of salt and water from the body. Diuretics are further divided based on their mechanism of action. Loop diuretics work in a specific segment of the kidney, thiazide diuretics work in another segment, and osmotic diuretics have still a third mechanism and area of action. Within the thiazide diuretics, there are several different drugs. All have certain actions and side effects in common. They differ based on their potency, the number of times they must be taken each day to be effective, and their dosage forms.

The Science and Art of Clinical Pharmacology

Many factors are considered when choosing a drug for a specific patient. This decision is made by the prescriber with advice and information from the pharmacist if requested.

The prescriber considers the following factors when choosing a medication for a patient.

- **Step #1: Consider the patient's condition.**

  The patient's condition is determined by the prescriber through examinations or laboratory tests.

- **Step #2: Determine what general type of medication is required.**

- **Step #3: Use information to choose a specific medication.**

  At this point, the prescriber would consider a specific medication based on its use, mechanism of action, or chemical structure. Also at this point, the prescriber would consider any known allergies the patient might have to particular drugs. Other medications the patient might be taking would be checked for possible drug interactions with the new prescription. The patient's age and ability to tolerate certain dosage forms or routes of administration would also be considered.

The above are clinical or patient related considerations in choosing drug therapy. Other issues such as cost and availability can be factors in the decision process. Most hospitals and some offices have a list of drugs approved by the hospital called a formulary, which may affect the choice of medication. If the prescriber's office has samples of a particular medication, that may also affect the choice because sample medications are free and readily available to the prescriber.

The following steps give an example of how the science of pharmacology is used to make rational decisions about which medication to prescribe for a patient with an infection.

Step #1: Consider the patient's condition.

Infections in the body are caused by different types of bacteria. The germs that cause an infection in the throat are different than the germs that cause infections in the urinary tract or on the skin. The physician records the patient's symptoms, conducts a physical examination, and notes the signs of infection. Laboratory tests may be done to specifically identify the presence of an infection and the bacteria responsible. This information is used to make a diagnosis. The patient is questioned about the duration of infection, any home remedies or prescription medication he or she may have used, and any allergies or intolerance to medications. This information is part of the patient's history.

Step #2: Determine what general type of medication is required.

The prescriber has many years of education and experience which enable him/her to quickly determine the general medication needed based on the patient's condition. In this case, the prescriber will probably determine that an antibiotic is needed.

Step #3: Use information to choose a specific antibiotic class.

Antibiotics differ in their ability to kill bacteria. A particular drug may be very effective at killing one type of bacteria but not other types of bacteria. They are said to be resistant to that antibiotic. If an antibiotic is effective against many different types of bacteria, it is said to be a broad-spectrum antibiotic. If it kills only a few different types, it has a more narrow spectrum of activity. A bacteria that is killed by a particular antibiotic is said to be sensitive to that drug. Some patients are allergic to certain types of antibiotics. In some cases, allergy to one drug means that the patient is likely to be allergic to others in the same chemical class. Antibiotics also differ in the number of times a day they must be taken. Usually, taking a medicine once or twice a day is easier for patients to remember than taking a medicine three or more times a day.

The side effect profile of antibiotics may differ. Some cause diarrhea, some interact with birth control pills, some cause sun sensitivity, etc. Side effects that may be no problem for one patient might be intolerable for another patient.

When combined with the physical findings and laboratory results, the patient profile helps the prescriber to choose an appropriate antibiotic. The pharmacist has a complete medication profile for the patient, and can assess whether a newly prescribed antibiotic will interact with any other medications that the patient may be taking. Each professional has a role to play to ensure that the patient will receive effective and safe treatment.

The scientific method of using antibiotics is only one example of how physical findings of disease and information from the patient's history are matched with the pharmacologic characteristics of a specific drug to find the best treatment for a particular illness.

Drug Classifications

As mentioned earlier, drugs can be classified based on their use, mechanism of action, or chemical structure. The pharmacy aide's first job should be to learn the names (both generic and brand) for the drugs used in the pharmacy. The next step should be to begin classifying drugs based on their most common uses. Although the pharmacy aide does not have a role in choosing drug therapy for patients, it may be helpful for the aide to be aware of the most likely uses of the various drugs in the pharmacy. This might help the aide avoid a potentially embarrassing situation with a patient. For example, a patient with a prescription for a drug to treat an ear infection might have a different outlook than a patient with a prescription for a drug to treat depression.

The aide should keep in mind that many drugs have more than one use. The aide should not jump to conclusions about patients based on their prescriptions. Remember that the prescription and medical records of patients are private and should never be discussed outside the pharmacy. Table 1.1 gives a partial list of some common classes of drugs, their many uses, and an example drug in each class.

Monitoring Parameters

When a patient begins a new drug treatment, the patient is carefully monitored for signs of improvement and for signs of side effects or interaction between drugs. The signs that are checked are called **monitoring parameters**. Monitoring parameters are set for drug effectiveness, which identify signs that indicate the patient is improving. Monitoring parameters are also set for toxicity, which identify signs that indicate the drug therapy is being tolerated without side effects.

Monitoring for drug effectiveness is important because the goal is for the patient's problem to improve. Even if the patient does not improve, medical personnel need to know so that treatment can be changed. Monitoring for toxicity is important since a drug treatment that is causing side effects would not be continued.

Monitoring parameters vary depending on the disease. The physician and pharmacist may tell the patient what symptoms to monitor to indicate improvement and what potential side effects the medication may cause. For a throat infection, the patient might be told to watch for a decrease in throat pain and a decrease in fever. The

Table 1.1 - Examples of Drugs With More Than One Use

DRUG CLASS	POSSIBLE USES	EXAMPLE DRUG
antihistamines	• hay fever • insomnia	• diphenhydramine (Benadryl®)
benzodiazepines	• anxiety • insomnia • prevention of vomiting due to cancer chemotherapy • seizures	• diazepam (Valium®)
diuretics	• hypertension • heart failure • premenstrual syndrome	• hydrochlorothiazide (HydroDiuril®)
hydantoins	• seizures • cardiac arrhythmias	• phenytoin (Dilantin®)
glucocorticoids	• respiratory diseases • kidney diseases • cancer	• prednisone • cortisone

doctor might culture the patient's throat to see if the bacteria causing the infection are gone. The patient needs to know the most common side effects of the antibiotic and what to do if they occur. These may be things the patient can check for at home, or they may require that the patient have a lab test done.

Some terminology that may be used in monitoring patients:

- Febrile - having an elevated temperature
- Hypertensive - having an elevated blood pressure
- Hypotensive - having a low blood pressure
- Tachycardia - having rapid heart rate
- Bradycardia - having a slow heart rate
- Tachypneic - having a rapid breathing rate
- Analgesia - showing signs of decreased pain
- Ataxic - having difficulty walking, or even sitting, due to dizziness

Many other terms used in patient monitoring are found in a medical dictionary.

Using References in the Pharmacy

The pharmacy aide is not expected to memorize all of the information needed to assist the pharmacist. The pharmacist certainly does not attempt to memorize every fact about each drug. In fact, over-reliance on memorization and failure to know how to use references is dangerous in pharmacy.

When an aide is asked a question, a pharmacy technician or the pharmacist may

need to be consulted depending on the nature of the question. A good test to see if a question can be answered by a pharmacy technician is if the question could have more than one right answer. If there could be more than one answer, then the pharmacist's professional judgment is needed to answer the question. The pharmacy aide may be asked to help by finding the right reference materials.

Although an entire college course in pharmacy school is devoted to learning about different books, journals, and computer databases that contain information about drugs, the pharmacy aide can become familiar with several common references. It is not possible to learn how to be a pharmacist from these references and some information is beyond what is needed by the aide or technician. However, the pharmacy aide may be asked questions that can be answered by looking up the information in one of the references listed.

Translating a brand name to a generic name:

- *Facts and Comparisons*
- *American Drug Index*

Finding out how a drug is packaged:

- *Facts and Comparisons*
- *American Drug Index*
- *Red Book**
- Wholesaler catalog

Finding out the different dosage forms of a drug:

- *Facts and Comparisons*
- *American Drug Index*
- *Red Book**

Spelling or defining a medical term:

- *Taber's Medical Dictionary*
- *Dorland's Medical Dictionary*

Finding out how much a drug costs:

- *Red Book**
- Wholesaler catalog

Finding out the National Drug Code (NDC) number for a drug:

- *Red Book**
- Wholesaler catalog
- *Physician's Desk Reference*

Finding out what schedule a drug is in:

- *Facts and Comparisons*
- *American Drug Index*
- *Red Book**

**The Red Book* referred to in this list is a different publication than the Missouri Law Book described previously. *The Red Book* is published by American Druggist Publications and is a valuable pricing and availability guide.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 1: Pharmacology

Activity Sheet

1. Pharmacology is defined as the study of the _____ , _____, and _____of drugs.

2. List three clinical factors used to select drugs for individual patients.

   a. _____

   b. _____

   c. _____

3. Match the following drug types with the possible uses listed on the right.

_____	Diuretics	a.	Hay fever
_____	Antihistamines	b.	Anxiety
_____	Hydantoins	c.	Hypertension
_____	Glucocorticoids	d.	Seizures
_____	Benzodiazepines	e.	Respiratory diseases

4. List and define three terms used in monitoring a patient's response to a drug.

   a. _____

   b. _____

   c. _____

5. List two reference books the pharmacy aide should be familiar with.

   a. _____

   b. _____

Clinical/Laboratory Activities

1. Use a drug information reference (like *Facts and Comparisons*) to complete the following table. Think about what might happen if some of the drugs with similar sounding names (look-alike/sound-alike) were accidentally mixed up.

Generic	Trade	Strength	Common Use	Liquid Available?
amoxicillin				
	Biaxin®			
phenytoin				
	Tegretol®			
	Accutane®			
	Lo-Ovral®			
theophylline				
digoxin				
ritodrine				
	Zantac®			
	Xanax®			
	Prilosec®			
	Lasix®			

2. Your pharmacy has a patient on Theo-Dur® 300 mg every 12 hours. Her blood theophylline level is too high currently and she is experiencing symptoms of tachycardia and nervousness. The physician and pharmacist agree that Theo-Dur® 200 mg every 12 hours would provide a level high enough to treat the patient's asthma, but low enough to avoid the toxicity currently being seen. Unfortunately, the pharmacy does not have any 200 mg Theo-Dur® tablets. You need to check to see if they come in that strength, and what the NDC code is, so that you can order them. Which references would you use to find this information?

_____

_____

Lesson 2:
Organization of Drugs in the Pharmacy

Objectives:

A. Differentiate between over-the-counter and prescription drugs.

B. Differentiate between brand name and generic name of drugs.

C. Differentiate between routes of administration.

D. Differentiate between dosage forms.

E. Locate drugs in the pharmacy stock.

F. Identify the pharmacy aide's role in maintaining security in the pharmacy area.

Key Terms:

- Over-the-counter
- Legend
- Brand name
- Generic name
- Route of administration
- Enteral
- Parenteral
- Topical
- Oral
- Sublingual
- Inhalation
- Intravenous
- Subcutaneous
- Intramuscular
- Intradermal
- Rectal
- Vaginal
- Nasal
- Ophthalmic
- Otic
- Systemic
- Local
- Dosage form
- Tablets
- Capsules
- Lozenges
- Suppositories
- Suspension
- Solution
- Elixir
- Syrup
- Creams
- Ointments
- Transdermal patch
- Medication bay
- Cassettes

Over-The-Counter or Prescription Only

Drugs are sold under two sets of rules in the United States. Simply stated, drugs that can be sold without a prescription are known as **over-the-counter** or OTC drugs. Drugs that require a prescription are known as prescription or **legend** drugs. Legend refers to the federal warning printed on the pharmacy package containing a prescription drug. The legend states, "Federal law prohibits dispensing without prescription." The container prepared for the patient must state "Caution: Federal law prohibits transfer of this drug to any person other than the patient for whom it was prescribed." Many pharmacies have the legend preprinted on their prescription label.

The Food and Drug Administration (FDA) decides how a drug will be sold. Sometimes a drug will change from legend to over-the-counter status. Before a drug can be sold over the counter, it must be proven to be both effective and safe when taken in recommended quantities. Some older OTC products were not held to modern standards for proof of safety and efficacy. In fact,

aspirin has many dangerous side effects in susceptible people and is very dangerous when taken in overdoses. Most scientists at the FDA agree that it would never be an OTC drug if it were under review today. This example should serve to point out that OTC drugs can be potent, and can be dangerous if used inappropriately or by the wrong patients.

Pharmacy aides must be careful to offer the pharmacist's counsel when directing patients or customers within the store. There may be some additional advice needed besides directing the customer to where the cold medicine is kept. The aide could provide both types of information by saying something like, "Ms. Green, the pain relievers are located on the middle shelf of aisle three. Would you like to speak to the pharmacist about the different kinds available?"

Over-the-counter drugs may be stored on open shelves to provide easy access. Patients often need to read labels carefully and compare the active ingredients in different products. This is especially true when the products contain more than one active ingredient such as in cough and cold products. Some OTC products may be stored behind the pharmacy counter, out of reach from patients. Although OTC drugs may be sold without prescription, the pharmacist may want to provide advice to patients before they purchase the product.

Brand Name or Generic Name

Almost every drug is known by a brand name and a generic name. A **brand name** drug is a drug with a trademark that usually has a reputation and a loyal following. In the simplest terms, a **generic drug** is a drug not protected with a trademark.

An easy way to understand the difference is to think of products available at a grocery store. Canned tuna, for example, is sold under well known brand names such as Star-Kist® or Chicken of the Sea®. Tuna is also available generically with a "tuna" label and no brand name at all. The names Star-Kist® and Chicken of the Sea® are catchy and easy to remember. Usually any advances in the tuna industry, like making the nets safe for dolphins, are developed, tested, and advertised by the brand name tuna companies. Brand name tuna is of high quality and is usually slightly higher in price. Generic tuna is lower in price than brand name, but there is sometimes a quality difference. If a consumer finds a generic type of tuna that is of acceptable quality, he or she usually tries to stay with that brand. Generic tuna companies do not advertise to consumers. They also do not invest money in developing new tuna technology but may adapt innovations developed by the brand name companies.

The example above holds true for drug development as well. Generic drugs are usually less expensive. This is because the generic manufacturers do not invest much money in advertising or in research and development of new drugs. In order to protect the investment that drug companies make in developing new drugs, the FDA prohibits generic manufacturers from selling newly approved drugs for a few years after they are introduced. Once the drug is available generically, it is usually available from many sources. Some companies that sell generic drugs have very high quality standards, others are less controlled. A prescriber may indicate that a generic drug may be used for a prescription. However, patients who are on generic drugs should try not to switch from one generic brand to another.

The generic name for a prescription drug often sounds very scientific. In fact, the

pharmacist can often tell something about the chemical structure and possible uses of a new drug just by hearing the generic name. The brand name of a drug can also give a clue to its use, but it is mainly designed to be easy to remember and to order. The pharmacy aide must be very familiar with both brand and generic names and must be able to translate between the two.

Routes of Administration

Most of the time, people think of medications as tablets or capsules that are swallowed whole. Tablets and capsules are only two of the drug dosage forms available. The method for taking a medication is called the **route of administration**. The dosage form often gives an indication of the route of administration. For example, a tablet dosage form is usually taken orally but can also be administered vaginally. On the other hand, the location of the patient's ailment does not always dictate the most logical route of administration. For example, glaucoma causes increased pressure in the eyes. Using eye drops seems logical, but oral medication is often used as well.

There are many instances when patients use medications by the wrong route of administration. This is why patient counseling by the pharmacist is so important. Routes of administration are broadly defined as enteral, parenteral, or topical. **Enteral** administration means using the gastrointestinal tract for absorption. Enteral routes of administration include oral, sublingual, and rectal. **Parenteral** routes of administration include various types of injections. A newer form of parenteral administration is the use of specially designed skin patches which slowly release the drug for absorption into the blood stream. **Topical** routes of administration apply the drug directly to the affected area.

Specific routes of administration include:

- **Oral** - taken by mouth and swallowed
- **Sublingual** - placed under the tongue and allowed to dissolve
- **Inhalation** - inhaled into the lungs
- **Intravenous** - injected into the bloodstream
- **Subcutaneous** - injected under the skin and absorbed into the bloodstream
- **Intramuscular** - injected into a muscle and absorbed into the bloodstream
- **Intradermal** - injected into the skin, usually to assess the immune system
- **Rectal** - inserted into the rectum
- **Vaginal**- inserted into the vagina
- **Topical**- applied to the skin, or a mucous membrane
- **Nasal** - applied or inhaled into the nose
- **Ophthalmic** - applied to the eye
- **Otic** - applied into the ear canal

Routes of administration can be divided into the categories of systemic and local. A **systemic** drug is absorbed into the blood stream to be delivered to its site of action. Many analgesics, antibiotics, blood pressure medications, anticancer drugs, and drugs that act on the central nervous system act systemically.

A **local** effect is limited to the part of the body which comes into direct contact with the drug. The most common type of local administration is a cream or ointment applied to a skin rash. Some other examples are antacid liquids which change the acidity of the stomach, antifungal suppositories for vaginal infections, and

anesthetics to numb an area of the mouth. Drugs used for local effects generally have fewer systemic side effects since the entire body is not exposed to the drug. However, it is not always possible to tell whether a drug has a local or systemic effect based on its route of administration. A cream or ointment may be applied to the skin but be intended to exert a systemic effect. Local anesthetics are given by injection but only act near the site of injection. Assuming a particular site of action based on the dosage form can lead to a mistake.

Dosage Forms

Medications are usually combinations of a very small quantity of a chemical (the active ingredient) combined with inactive ingredients to make convenient dosage forms. A **dosage form** is the size, shape and content of a medication. The inactive ingredients in a dosage form may be present for many reasons. For example, they may be added to improve taste, appearance, stability, or absorption. Many medications are available in more than one dosage form. Before the aide begins to prepare prescriptions, it is vital that dosage forms are understood.

Some of the most common dosage forms include:

Solid Dosage Forms

Solid dosage forms taken orally are the most common and convenient method of taking medications. You may be surprised to find out that there are other ways to use solid dosage forms besides orally.

Tablets are made of tightly compressed powder. They can crumble if not protected from moisture or if they are loosely packaged in a prescription container. Some tablets have a coating which eases swallowing or causes the tablet to dissolve in a certain region of the gastrointestinal tract. Some tablets are scored so they can safely be broken into pieces to give a smaller dose. Most tablets are given orally. Although most are swallowed whole, some are chewable and some are designed to be dissolved in water prior to administration. Tablets may be used by other routes of administration such as vaginally.

Capsules contain the active drug and inactive powders within a hard gelatin shell. When the gelatin capsule dissolves, the drug is available for absorption. Capsules cannot be divided and must be swallowed whole without chewing. Capsules are often an effective way of disguising the taste of a bad tasting drug since the coating is tasteless. The shape of capsules makes them easier to swallow for some patients. This has led some manufacturers to make "caplets" which are tablets shaped like capsules. Capsules are almost always given orally, but some capsules contain a powder and use a special adapter for inhalation.

Lozenges contain an active drug in a sugar sweetened base similar to a hard candy. They are used for topical administration of medications to the mouth or throat. They are not designed to be chewed or swallowed, so they are an example of a solid dosage form used for a topical application.

Suppositories are a solid dosage form containing the active ingredient dissolved in an oily base. It is solid at room temperature but melts at body temperature. Suppositories are usually used rectally or vaginally. The drug may be intended for a local effect on the rectum or may be absorbed systemically.

Liquid Dosage Forms

Liquid dosage forms for oral use may be flavored and colored to appeal to children who cannot swallow a tablet or capsule. Liquid dosage forms also allow easy adjustments of doses for children. Many oral liquids are formulated to be thick to make it easier to accurately measure the correct dose. Another common use of oral liquids is in older patients who have swallowing difficulties which may cause them to choke on a solid dosage form.
Liquid dosage forms are also used parenterally. Usually, the parenteral dosage form is a solution.

Suspensions are characterized by small particles of drug powder suspended in a liquid. Suspensions for oral use are often made to be thick to help the drug stay suspended in the liquid without settling. Suspensions must always be shaken prior to measuring the dose to prevent the active drug from staying at the bottom of the bottle instead of being measured into the dose for the patient. Most suspensions are given orally, but a few are used parenterally for injection into an inflamed joint or as subcutaneous (under the skin) injections.

Solutions contain the drug dissolved in water. If water does not dissolve the drug, then another liquid may be used. Solutions generally taste the worst of all the oral liquid dosage forms despite flavorings or sweeteners.

Elixirs are a type of solution used when the drug does not dissolve in water. The first step in preparing an elixir is to dissolve the drug in a small amount of alcohol before further dilution in water. Elixirs are also sweetened and flavored. In most cases, the small amount of alcohol does not affect the patient. Although in some circumstances, alcohol in an elixir may cause problems.

Syrups are another type of solution. Syrups contain the drug dissolved in sugar water. Syrups are almost always very thick due to the large amount of sugar. Because they are so thick and sweet, they can cause tooth decay if not rinsed from the teeth. They are usually flavored and to an adult they taste very sweet!

Besides solutions and suspensions, some other liquid dosage forms like lotions are used topically. Keep in mind that topical administration may mean application to the skin, eye, or ear.

Creams, Ointments, and Patches

Creams and **ointments** are neither liquid or solid. Most are designed for application to the skin or mucous membranes. The difference between a cream and an ointment is the type of base. Creams have a water base and are absorbed by the affected area. Ointments have an oil base and provide a protective and medicated barrier over the affected area. They are not interchangeable.

A **transdermal patch** is a medication in an adhesive bandage that is applied to the skin. The medication is absorbed into the bloodstream through the skin.

Finding Drugs in the Pharmacy

Drugs are arranged in the pharmacy in a logical order. The problem comes in figuring out whose logic was used to lay out the pharmacy! Generally, over-the-counter medications are stored on shelves within easy reach of the customers in the pharmacy. OTC medications are usually arranged by the symptom or problem they are intended to treat. Thus, all the cough and cold preparations are stored together, as are analgesics, steroid creams, vitamins, antacids, etc. Some OTC medications may

be stored behind the pharmacy counter, especially if they require advice from the pharmacist before use.

Prescription drugs are always stored in an area of the pharmacy where access is limited. In large stores, only those workers specifically authorized are allowed behind the pharmacy counter. The drugs are usually stored on shallow shelves in u-shaped shelving units called **medication bays**, as in Figure 2.1. The pharmacy preparation area often has storage drawers for medications, called **cassettes** (Figure 2.2). Cassettes can be locked when storing controlled substances. In most pharmacies, drugs are arranged alphabetically by generic name. A few exceptions may exist, however. In many pharmacies, the most frequently used drugs are kept on a shelf near the dispensing area to cut down on walking and traffic in the pharmacy area. Some pharmacies call this area the "speed shelf" or "fast mover shelf." In the past, pharmacies arranged drugs by manufacturer to make reordering easier. Now, most pharmacies buy all drugs from a wholesaler rather than from each individual company, so arranging the drugs by manufacturer is less common.

Figure 2.1 - Medication Bay

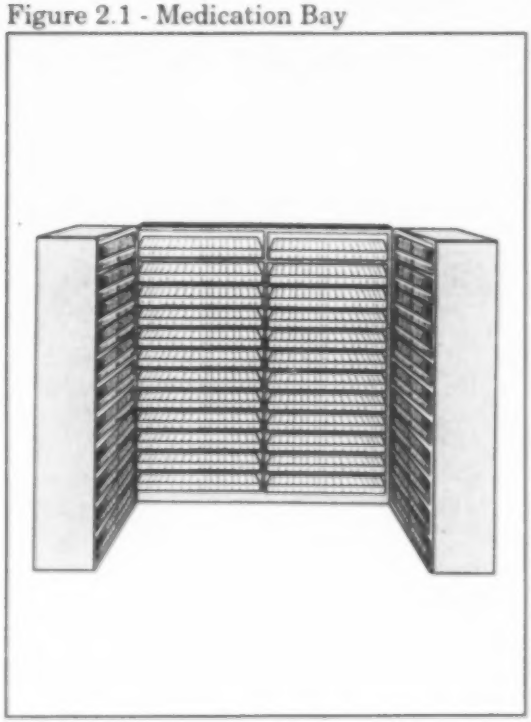
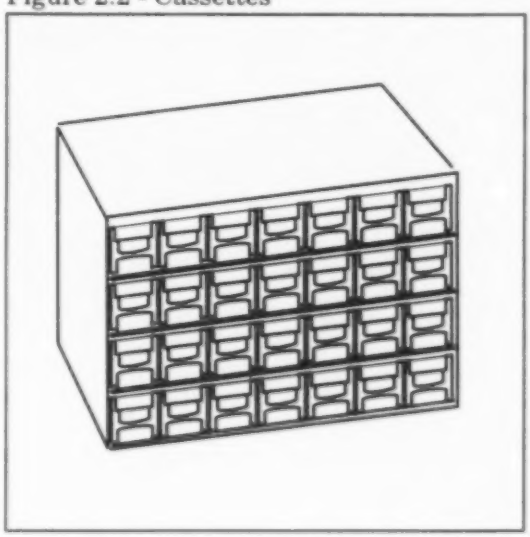


Figure 2.2 - Cassettes



Some drugs are not in their expected place on the shelf because they need refrigeration or other special storage conditions. Some drugs come in packages that do not fit the pharmacy shelving and have to be kept out of order. Always ask for help if you cannot find something. You might consider drawing a map of the pharmacy with the common exceptions located on it. Always put things back where they were found. Even if the storage spot for a product does not make sense to you, others in the pharmacy are accustomed to finding it in its usual spot. The aide must be especially careful when cleaning shelves, since removing all of the products from an area makes it even more difficult to replace them accurately.

Storing Controlled Substances

In most retail pharmacies, controlled substances are stored within the rest of the pharmacy stock. This is to prevent the loss of all controlled substances in the case of theft. Most hospital pharmacies must keep more types of controlled substances and higher quantities on hand. Hospital pharmacies usually keep these drugs locked up away from other stock. The most tightly controlled substances are generally kept in locked cabinets in patient care areas. It may be a pharmacy aide's function to deliver these agents to the units. Each pharmacy develops individual policies and procedures about which employees may handle controlled substances.

Pharmacy Security

When discussing drug storage and controlled substances, it is appropriate to discuss some security measures that most pharmacies practice. The entrance and exit doors to the pharmacy department should be closed. Unauthorized persons should not enter the prescription area. Store personnel should not enter the prescription area unless they are scheduled to work. Access to controlled substances (especially Schedule II drugs) should be limited to on-duty pharmacists. In Missouri and many other states, laws require that the pharmacy department be locked when a pharmacist is not on duty. The pharmacy aide must follow the established policies of the pharmacy where he or she is employed.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 2: Organization of Drugs in the Pharmacy

Activity Sheet

1. List three differences between over-the-counter and prescription medications.

   a. _____

   b. _____

   c. _____

2. List an example of a generic over-the-counter medication and then give two examples of brand names of that same medication.

   a. _____

      1. _____

      2. _____

3. List four routes of administration.

   a. _____

   b. _____

   c. _____

   d. _____

4. List four liquid or solid dosage forms.

   a. _____

   b. _____

   c. _____

   d. _____

5. How are over-the-counter medications stored in the pharmacy? How are most prescription medications arranged?

   _____

   _____

6. List two measures the pharmacy aide and staff should practice when enforcing pharmacy security.

   a. _____

   b. _____

Clinical/Laboratory Activities

1. Using the list of dosage forms, find a product that is an example of each of the dosage forms. Use the pictorial section of the *Physician's Desk Reference* for a start, and then look up each of the products in the *American Drug Index* or *Facts and Comparisons* for a list of the available dosage forms.

Dosage Form	Example Medication	Other Dosage Forms Available for Medication
Tablets		
Capsules		
Sublingual tablets		
Suspensions		
Solutions		
Elixirs		
Suppositories		
Creams		
Ointments		
Patch		

2. Answer the following questions about the medications listed by using references. What is the route of administration for each of these products? Provide a brand name for each product. Which of these products are available generically? Does the medication have a systemic or local effect?

Medication	Route of Administration	Brand Name	Generic Available?	Systemic or Local Effect
NPH insulin				
amoxicillin suspension				
imipenem for injection				
transdermal fentanyl				
triamcinolone suspension				
nonoxynol-9 foam				
nitroglycerin tablets				
nitroglycerin injection				
chlorothiazide suspension				
aluminum hydroxide suspension				
sucralfate tablets				
ranitidine tablets				

3. Check your home medicine cabinet for prescription and OTC medications. List them by generic name and brand name. Does this list bring up any patient confidentiality issues that concern you? If so, consider editing your list so that you feel comfortable sharing it with your instructor. This should convince you that patient privacy is important.

_____

_____

_____

_____

4. After learning the location of drugs at your clinical site, ask your clinical supervisor if you can direct customers to the location of OTC medications and if you can locate medications for specific prescriptions.

Lesson 3:
Measurement Systems

Objectives:

A. Identify different measurement systems.

B. Match measurements to their abbreviations.

C. Convert between measurement systems.

D. Identify and use appropriate measuring devices.

Key Terms:

- Metric System
- Apothecary System
- Avoirdupois System
- Balance
- Graduated cylinder
- Meniscus
- Oral syringe

Measurement Systems

Measurements in pharmacy are almost always expressed in the **metric system**. The older system of measurement in pharmacy is called the **apothecary system**. Although infrequently used, pharmacy personnel are occasionally required to convert metric measurements to apothecary units. The **avoirdupois system** of measurement (ounces and pounds) is used by most Americans. Pharmacists need to convert from metric to the more commonly used avoirdupois units on a daily basis since pharmacists need to communicate with patients in terms they understand.

The metric and avoirdupois measurement systems are defined in the core materials for health occupations students. This lesson will provide constants for converting between metric and common units, but you should review the definitions, abbreviations, and conversions of the measurements provided in Appendix I. The apothecary measurement system, which is not defined in the core lesson, is listed below.

Apothecary System

Volume or liquid measurements

1. Minim - m, min
2. Fluid dram - dr, ʒ
3. Fluid ounce - oz, ℥
4. Pint - pt.
5. Quart - qt.
6. Gallon - gal.

Solid weight measurements

1. Grain - gr.
2. Dram - dr, ʒ
3. Ounce - oz, ℥
4. Pound - lb.

Conversion Constants

Weight

1 pound = 454 grams
1 kilogram = 2.2 pounds
1 ounce = 30 grams
1 grain = 65 milligrams

To convert pounds to grams, multiply by 454.

Example: An 8-pound baby weighs 3632 grams. (8 pounds x 454 grams/pound = 3632 grams)

To convert pounds to kilograms, divide by 2.2.

Example: A 120-pound woman weighs 54.5 kilograms. (120 pounds ÷ 2.2 pounds/kilogram = 54.5 kilograms)

To convert ounces to grams, multiply by 30.

Example: A four-ounce tube holds 120 grams. (4 ounces × 30 grams/ounce = 120 grams)

To convert grains to milligrams, multiply by 65.

Example: 10 grains of Tylenol® equals 650 milligrams. (10 grains × 65 milligrams/grain = 650 grains)

Volume

1 fluid ounce = 30 milliliters
1 pint = 480 milliliters
1 teaspoonful = 5 milliliters

To convert ounces to milliliters, multiply by 30.

Example: A six-ounce bottle holds 180 milliliters. (6 ounces × 30 milliliters per ounces = 180 milliliters)

To convert pints to milliliters, multiply by 480.

Example: A two-pint bottle holds 960 milliliters. (2 pints × 480 milliliters/pint = 960 milliliters)

To convert teaspoons to milliliters, multiply by 5.

Example: Two teaspoons equal 10 milliliters. (2 teaspoons × 5 milliliters/ teaspoonful = 10 milliliters)

Length

1 inch = 2.54 centimeters
39 inches = 1 meter
1 micron = 0.000001 meter

To convert centimeters to inches, divide by 2.54.

Example: A cut on a patient's leg is 10 centimeters in length, which is almost four inches. (10 centimeters ÷ 2.54 centimeters/ inch = 3.937 inches)

To convert meters to inches, multiply by 39.

Example: Two meters are 78 inches. (2 meters x 39 inches/meter = 78 inches)

To convert microns to meters, multiply by 0.000001.

Example: 4 microns are .000004 meters/micron. (4 microns x .000001 meters/micron = .000004 meters)

Abbreviations and Avoiding Errors

Some abbreviations can be dangerous if misinterpreted. The abbreviations for metric weight are an example. Gram is properly abbreviated "g." **CAUTION:** "gr" is the abbreviation for grain, a unit of measurement in the apothecary system. It should NEVER be used to denote grams. Microgram is abbreviated "mcg" or "μg." It is easy to mistake this abbreviation for "mg" which means milligram, so writing this abbreviation carefully is very important.

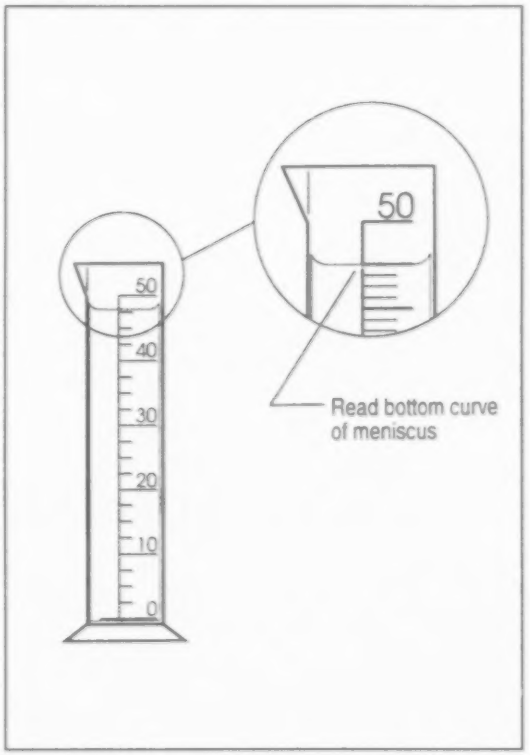
Measuring Devices

In the pharmacy, weight is measured using a balance. A **balance** (Figure 3.1) is a type of scale designed to accurately weigh very small quantities of a solid substance. It is important to use a balance correctly. Improper loading of a balance can ruin the calibration and require costly adjustments. A pharmacy balance can be used to accurately weigh a quantity as small as 30 mg.

Fig. 3.1 - Balance

Volume is most accurately measured using a **graduated cylinder**, as in Figure 3.2. A graduated cylinder is a cylinder marked by a succession of lines, steps or degrees. Fluid in a graduated cylinder is measured at the lowest point of the curved surface of the fluid. The curved surface of the fluid is called the **meniscus** (Figure 3.2). The center of the fluid's surface will be slightly lower than the sides. The reading is taken from the lowest level. The graduate should be placed on a level surface for an accurate reading. It should not be held in the hand. A beaker or flask can be used for estimating the volume of a fluid, but these vessels are

Fig. 3.2 - Graduated Cylinder with Meniscus



usually only accurate to within 10 percent of the true volume. Most prescription bottles are marked with indicators of volume. These marks are estimates and

should not be used when accurate measurements are required. In some circumstances, however, it can be more accurate to use these markings on the final container than to use a graduate and then try to transfer all of the active drug product to the final container. The pharmacist will have specific guidance on this issue.

Patients may need to accurately measure small volumes of liquid medications for infants and children. An oral syringe is used for this purpose. An **oral syringe**, as in Figure 3.3, is an instrument for introducing fluids orally into the body. For some very potent medications, a household teaspoon is not accurate enough for these measurements.

Fig. 3.3 - Oral Syringe

Length is measured with a ruler. Length is rarely used in pharmacy measurements, but the size of a bandage or other dressing material may be expressed in units of length.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

After you have completed the activity sheets, you may take the written unit evaluation. A score of 80 percent indicates that you may proceed to the next unit. Review any materials incorrectly answered.

Lesson 3: Measurement Systems

Activity Sheet

1. Match the systems of measurement listed below with the descriptions on the right.

___	Metric	a. A common system of measurement familiar to most Americans
___	Apothecary	b. The measurement system used in most pharmacies
___	Avoirdupois	c. An older system of measurement once used in pharmacies

2. Match the following abbreviations with units of measurement listed on the right.

___	g	a. cubic centimeter
___	mg	b. milliliter
___	cc	c. gram
___	ml	d. milligram

3. Fill in the blank to complete the following statements.

   a. A(n) _____ is designed to accurately weigh very small quantities of a solid substance.

   b. Volume is most accurately measured using a(n) _____.

   c. A(n)_____ is used to measure small amounts of liquid medications for infants and children.

Convert the following. (Show your work.)

4. A five-foot two-inch patient is _____ centimeters tall.

5. A 75-kilogram patient weighs _____ pounds.

6. A baby weighing 9 pounds, two ounces weighs_____ grams.

7. An ounce of a concentrated liquid is supposed to be diluted with water to make one pint of the final product. How many ml of the concentrate will be needed to make the product?

   _____ milliliters of concentrate

   How many milliliters of water? _____ milliliters

8. Convert 250 milliliters to fluid ounces.

   _____ fluid ounces

9. A gauze dressing measures 12 centimeters by 16 centimeters. Convert these measurements to inches.

   _____ inches by _____ inches

10. If a chemical costs $3.50 a pound, how much does 30 grams cost?

    _____ cost

11. A mother says her baby was born prematurely and weighed 900 grams when it was born. Express this in pounds and ounces.

    _____ pounds, _____ ounces

Clinical/Laboratory Activities

1. Look at the measuring devices at your clinical site. Which devices are offered?

   _____

   _____

2. Practice using the balance at your clinical site.

3. At your clinical site, with your supervisor's approval, measure elixirs.

4. Observe a pharmacist using the various measuring tools at your clinical site.

5. With your clinical supervisor's approval, measure a liquid dosage form using the appropriate measuring device.

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: Pharmacology Rating _____

Comments:_____

_____

_____

Activity Sheet: Organization of Drugs in the Pharmacy Rating _____

Comments:_____

_____

_____

Activity Sheet: Measurement Systems Rating _____

Comments:_____

_____

_____

Written Unit Evaluation Score _____

Additional Comments:_____

_____

_____

Teacher Signature_____Date_____

Student Signature_____Date_____

Unit IV

Prescription Processing

In this unit you will learn to identify the "rights" for processing a prescription. The typical work area organization within a retail pharmacy is discussed as well as the prescription process. You should be able to select a patient profile, evaluate a prescription order for completeness, calculate anticipated drug usage for a prescribed period, match medical abbreviations to their definitions, and process information for new prescriptions. Upon completion of this unit, you should be able to differentiate between medication packaging systems and learn to prepare different dosage forms for dispensing in the proper packaging.

Unit Lessons

Processing Information for Prescription Orders and Physician Orders

Preparing Medications

Lesson 1:
Processing Information for Prescription Orders and Physician Orders

Objectives:

A. Differentiate between a prescription order and a physician order.

B. Identify the "rights" for processing a prescriber medication order or a prescription order.

C. Identify common work areas in a retail pharmacy.

D. Select correct patient profile.

E. Identify components of a complete prescription.

F. Process information for new prescriptions.

G. Identify the required elements of a prescription label and choose the correct auxiliary label for a medication.

H. Calculate anticipated drug usage for a prescribed period.

I. Match medical abbreviations to their definitions.

J. Select physician orders pertinent to pharmacy.

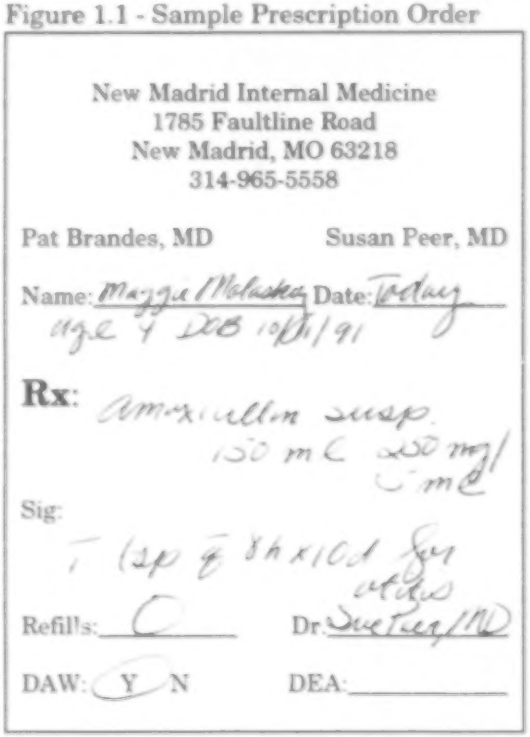
Key Terms:

- Prescription order
- Physician order
- In-window
- Out-window
- Data entry area
- Preparation area
- Pick up area
- Administration area
- Confirmation bias
- Prescription Log
- Auxiliary labels

Prescription Orders vs. Physician Orders

A **prescription order** is an order for a medication issued by a licensed prescriber such as a physician or dentist. Prescription orders are most common in retail pharmacies. See an example of a prescription order in Figure 1.1.

Figure 1.1 - Sample Prescription Order


New Madrid Internal Medicine
1785 Faultline Road
New Madrid, MO 63218
314-965-5558

Pat Brandes, MD Susan Peer, MD

Name: Maggie Malaska Date: Today
age 4 DOB 10/31/91

Rx: amoxicillin susp.
150 mL 250 mg/5 mL

Sig:
1 tsp q 8h x 10d #qs

Refills: 0 Dr. Sue Peer MD

DAW: (Y) N DEA: _____

In hospitals or long-term care facilities, physicians often write physician orders (Figure 1.2). A **physician order** contains all new medication orders and other physician requests for a patient on the same

Figure 1.2 - Sample Physician Order

Generic equivalent may be used unless the order is specifically followed by the notation: "Use no substitutes." May send medication while on pass from facility. May leave premises with responsible party. May send medications upon discharge. No order may stand for more than _____ days. I recertify for _____ level of care. Medications reviewed and approved as printed. I approve the overall plan of care.	**PHYSICIANS ORDERS**
	FUNCTIONAL LEVEL: UP AD LIB
	ACTIVITIES: PRN
Pharmacist's Signature _____	*SOCIAL SERVICES: PRN*
	ROUTINE LABS: SERUM K' FEB & JUL

MEDICATIONS	**Schedule**
Multivitamin tab 1 tab po every morning	*800A*
Digoxin 0.125Mg 1 tab po every morning	*800A*
~~*Furosemide 20mg 1 tab po every morning*~~ *DC* *1/20/93*	*800A*
Carbamazepine 200mg 1 tab po every 12 hours	*800A* *800P*
Captopril 12.5Mg 1 tab po 3 times daily	*800A* *1200N* *400P*
Carafate 1mg 1 tab po before meals and at bedtime	*700A* *1100A* *400P* *800P*
Acetaminophen 325mg 2 tabs po every 4 hrs prn for pain	*PRN*
Lorazepam 0.5mg 1 tab po at bedtime prn for sleep	*PRN*
Furosemide 40mg 1 tab po q morning	*800A*

	D/C Furosemide 20mg
	Furosemide 40 mg 1 tab po q AM
	1/20/93 Dr. Watson

sheet. In most hospitals, a copy of all order sheets is sent to the pharmacy department. Orders may be for laboratory tests, X-ray studies, new diets, respiratory therapy, physical therapy, consultations with other specialists, or other services that do not directly involve drug therapy. The pharmacy department generally receives copies of all of these orders. Selecting medication orders relating to the pharmacy is discussed later in this lesson.

"Rights" for Processing Prescription Orders and Prescriber Medication Orders

One simple way of expressing the goal of pharmaceutical care is "right drug, right dose, right patient, right time". Every member of the team has an important role to play in assuring that patients get the right medication for the problem (right drug) and in the most effective amount (right dose). The "right patient" means that no errors are made in dispensing, no errors are made in administration (in a hospital or nursing home), and that medications are not shared between patients. The "right time" term means that the patient does not take doses early or late, and that the pharmacy system ensures that the medication is available to the patient at the scheduled time. It also means that the medication is given at the most effective and convenient frequency.

Work Areas in the Retail Pharmacy

Most retail pharmacies are organized for efficient work flow. This speeds prescription preparation and helps to prevent medication errors. Work flows from one end of the counter to the other, and each part of the counter has a specific function. The **in-window** is the area where patients are greeted and patient interviews are conducted. This area is the first impression of the pharmacy and should be uncluttered and neatly organized. The **out-window** is the area where pharmacists counsel patients and the sales staff complete the sales transaction. This area should also be kept uncluttered since patients need to sign forms or logs and write checks. Some pharmacies have only one window. Some pharmacies have separate counseling areas with more privacy.

The **data entry area** contains the pharmacy computer. It is often adjacent to the in-window. Information is entered into patient profiles, and the labels are printed near the dispensing area. The data-entry area is often arranged with three separate areas. The "to-be-entered" section holds prescriptions until they are entered into the computer. Prescriptions for patients who are waiting are usually entered before new prescriptions or refill orders for patients who will return later. The "to-be-filled" section is arranged by pick up times. This helps to organize work and have prescriptions ready when patients expect them. The "staging" section is near the dispensing area. The label, prescription, and stock bottle of medications to dispense are placed in the staging area.

The **preparation area** is where medications are packaged for patients. This area should always be kept neat and uncluttered. Mistakes that occur here because of a sloppy work environment may have disastrous consequences. This area contains counting equipment such as trays or automated pill counters. A container of distilled water is used to reconstitute powders for oral use. Auxiliary labels are stored in rolls and used to remind patients to use the medication safely. Auxiliary labels are discussed in detail later in this

lesson. A calculator is a handy tool in this area of the pharmacy. Prescription containers are also stored here. Reference books are often kept in this area of the pharmacy.

Another area of the pharmacy is the prescription **pick up area** where finished prescriptions are kept. There is probably an **administration area** or desk where paperwork and ordering functions may be done.

In a very busy pharmacy, two or three members of the support staff may be assigned to the prescription area, each managing one of the above functions. Other pharmacies ask the aide or technician to follow an individual prescription through several of the functions before handing it off to the pharmacist for final check and patient counseling. The aide must be prepared to work under either system and should be familiar with all of the functions. These functions will be discussed in further detail.

Selecting the Correct Patient Profile

The patient's profile contains demographic information, insurance information, and clinical information. Demographic information includes name, age, address, and phone number. Insurance information includes the type of insurance coverage the person has, the amount of deductible, and where to send the bill. The clinical information contains a list of all medications, medical problems, diagnoses, allergies, and family history. Each prescription filled by the pharmacy is added to the patient's profile. It is easy to see that selecting the correct profile is important in ensuring that the correct medication is provided and the billing information is correct.

Profiles are usually kept on a computer system. Generally, each patient's profile is kept separately. Profiles can usually be selected by the patient's name. In some cases, however, a number assigned by the computer system or the patient's Social Security number may be used. If profiles are selected by name, it is important to verify that the correct profile has been selected. The patient's birth date is often used to verify that the correct profile has been selected. If the patient's name is common, this verification is even more important. If the pharmacy is part of a large chain of stores, there may be many patients in the system. In the future, bar coding may be used to identify patients.

Evaluating Written Prescriptions for Completeness

A complete prescription always contains certain elements. Specific elements are required by law. Some prescribers add additional information that may be helpful to the pharmacist in interpreting orders or in updating the pharmacy profile. If any of the required elements are missing or illegible, the aide should consult with the pharmacist for clarification. **NEVER GUESS.**

Figure 1.3 shows a sample blank prescription order. Figures 1.4 and 1.5 provide examples of completed prescription orders.

1. The *prescriber's name, address, and DEA or BNDD numbers* should be printed on the prescription. The phone number may be included as well. This information is needed to ensure that the prescriber is authorized to write

Figure 1.3 - Blank Prescription Order

New Madrid Internal Medicine
1785 Faultine Road
New Madrid, MO 63218
314-965-5558

Pat Brandes, MD Susan Peer, MD

Name: _____ Date: _____
Address: _____ Age: _____

℞:

Sig:

Refills: _____ Dr. _____

DAW: Y N DEA: _____

prescriptions. The DEA and BNDD numbers may or may not be preprinted. The prescriber's DEA number is required on prescriptions for controlled substances.

2. Patient identification information:

3. The *patient's name* must be on the prescription.
   a. The *patient's address* is required for controlled substance prescriptions.
   b. In addition, many prescribers who write prescriptions for children put the patient's age, birthday, and/or weight on the prescription. This information is used to check the dose of the current prescription and should also be used to update the patient profile if needed.

3. The *date that the prescription was written* is required.

4. Precise identification of the drug product being prescribed is required. The abbreviation "Rx" means "prescription", and includes the following information.
   a. The *medication* that is being prescribed is ordered by generic or brand name.
   b. The *strength* of the medication is specified.
   c. The *dose* is also specified.

5. The *quantity* is specified; that is the *number* of tablets or capsules or the *amount* of a liquid medication.

6. The *directions for use* are also specified. The directions for use are also called the *signature* or "sig" for short. The duration of treatment may be specified in the sig or may be indicated by the number of times the prescription may be refilled.

7. The number of *refills* is indicated. If the refill area is left blank, the prescription cannot be refilled.

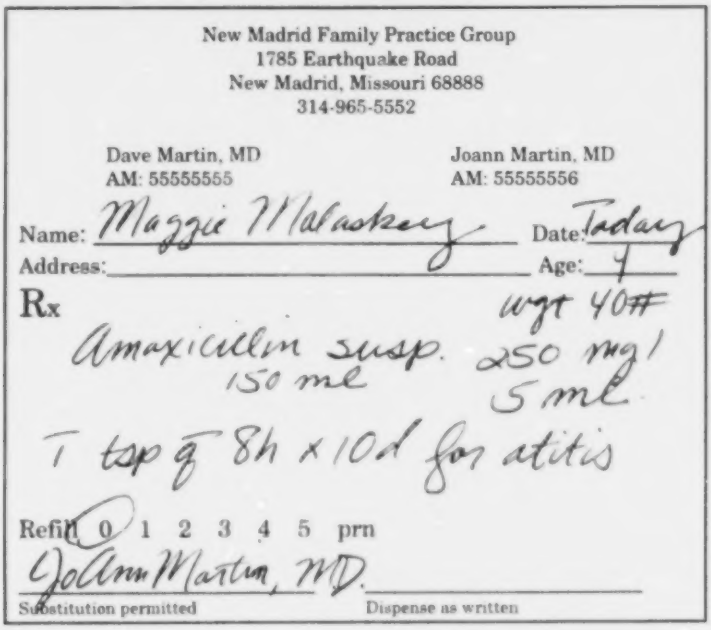
8. The prescriber also indicates if *generic substitution* is allowed by checking a box or by signing on one of two lines on the prescription form. The abbreviation "DAW" means "dispense as written," and means that generic substitution is not allowed.

9. The *prescriber's signature* is the last element of the prescription, but it is often the hardest to read! The signature must be handwritten, not stamped.

Processing Information for New Prescriptions

The pharmacy aide may assist the pharmacist by entering prescriptions into the computer. Any prescriptions entered by

Figure 1.4 - Sample Prescription Order for Acute Condition



New Madrid Family Practice Group
1785 Earthquake Road
New Madrid, Missouri 68888
314-965-5552

Dave Martin, MD
AM: 55555555

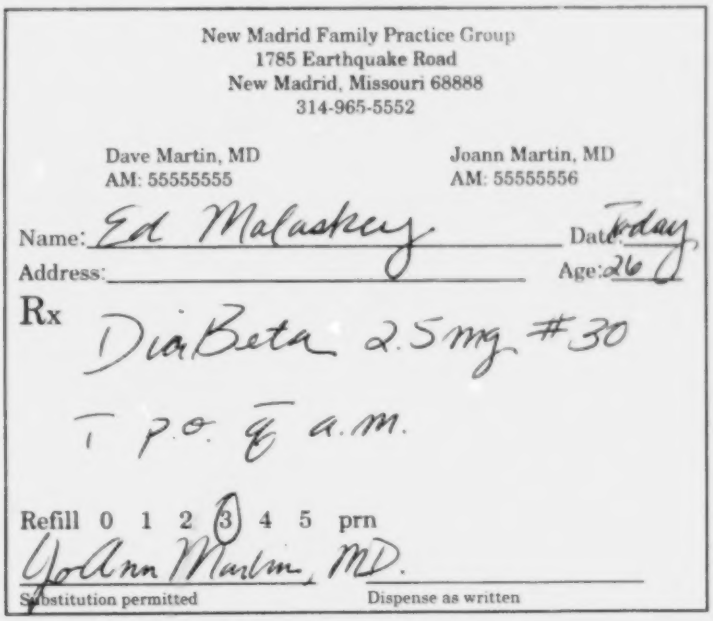
Joann Martin, MD
AM: 55555556

Name: Maggie Malasheny Date: Today
Address: _____ Age: 4

Rx wgt 40#
Amaxicillin susp. 250 mg/5 ml
150 ml
1 tsp q 8h x 10d for otitis

Refill 0 1 2 3 4 5 prn
JoAnn Martin, MD.
Substitution permitted Dispense as written

Figure 1.5 - Sample Prescription for Chronic Condition



New Madrid Family Practice Group
1785 Earthquake Road
New Madrid, Missouri 68888
314-965-5552

Dave Martin, MD
AM: 55555555

Joann Martin, MD
AM: 55555556

Name: Ed Malasheny Date: Today
Address: _____ Age: 26

Rx DiaBeta 2.5mg #30
1 p.o. q a.m.

Refill 0 1 2 3 4 5 prn
JoAnn Martin, MD.
Substitution permitted Dispense as written

a support person must be verified by a pharmacist before a medication is dispensed. This check may make the pharmacy aide feel that accuracy is not that important, since the pharmacist will check the order. There is a big problem with this assumption. Since orders entered into the computer look neatly typed and official, the pharmacist sometimes reads an erroneous prescription as correct. A psychological phenomenon called **confirmation bias** occurs. Confirmation bias happens because human beings often see what they expect to see. If a neatly typed prescription label is incorrect, it may be misread because the pharmacist expects to see a correct label. It is very important for pharmacy technicians and aides to ask questions during the order input process rather than waiting until the pharmacy check is taking place.

Usually, the computer program will ask the person entering the order for the needed information step by step. If a piece of information is vital to filling the prescription, the computer will not allow the person entering the order to move on until the questions are completely answered. Once the patient's profile is selected, the screens for demographic, clinical, and insurance information are displayed for confirmation. If no updates are needed, these screens can be quickly viewed and confirmed as correct. Here, too, the aide must be aware of and watchful for confirmation bias.

When processing information for a new prescription, the aide should always ask the patient about third-party payment information before processing the prescription. A third-party payer is someone other than the patient who is responsible for the reimbursement of health services. Third-party payments are discussed in detail in Unit VI.

Each piece of information in the new prescription is entered step by step. The date, name of the drug, dosage form, frequency, other instructions, amount, refills, and prescriber's name are entered. As each piece of information is entered, the computer often displays the most common choices for confirmation. Once the prescription information is entered, many computer systems perform drug interactions checking, allergy checking, refill frequency checking, and dose screening. Potential problems detected by the computer should be evaluated by the pharmacist.

Once the prescription order is entered, the computer generates output. Output can be as simple as a label for the prescription container or as complicated as a direct link to the patient's insurance company to post a bill to the patient's account. It is not always easy to see the consequences of errors in computer entry, so thorough training is needed. The aide should always have any questions about computer entry answered by a more experienced worker.

Steps of Procedure for Processing Information for a New Prescription:

1. Greet patient appropriately.
2. Obtain patient information, including name, address and birth date.
3. Obtain third-party information and request documents if needed.
4. Ask when the patient will return for the completed prescription. Provide an accurate estimate of waiting times if the patient desires to wait.
5. Choose and verify correct patient profile from computer.
6. Enter or update data into the patient profile if needed.

7. Verify the required elements of the prescription order.

8. Enter the prescription information into the computer, following the prompts provided by the system.

9. Alert the pharmacist of any problems detected by software interactions.

10. Have the pharmacist check the order input. Correct any problems and obtain a recheck.

11. Send output (labels, patient education, billing).

12. Arrange the label and other printed output with the original prescription for the medication.

Prescription Logs

State law may require that a prescription log be printed and filed at the end of every pharmacy work day. A **prescription log** is a log that documents which prescription orders were filled in a particular day and by whom the prescription orders were filled. Prescription logs are typically generated by the computer in spreadsheet form. See Figure 1.6. Once all the information for a new prescription is entered into the computer, many pharmacy computers will create a prescription log. The required components of a prescription log include:

- Serial number of prescription
- Date
- Patient's name
- Prescriber's name
- Medication name (brand or generic)
- Quantity
- Pharmacist

Telephone Prescription Orders

Verbal prescriptions are usually received by telephone. Telephone prescriptions must be received by a pharmacist or pharmacist intern and must be written down immediately. Always refer phone calls from prescribers to a pharmacist.

Labels

Prescription Labels

In most pharmacies, the prescription label (Figure 1.7 and Figure 1.8) is generated by a computer system. The required elements of the label are automatically printed as the prescription order is entered. These required elements include:

- The date the prescription was filled
- Pharmacy name and address
- Prescription number
- Name of the patient
- Name of the prescriber
- Directions for use and any precautions written on the prescription
- Controlled substances must be labeled with the statement "Caution: Federal law prohibits the transfer of this drug to any person other than the patient for whom it was prescribed."

State law or institutional policy may require additional information, especially if controlled substances are involved. This information may include:

- Address of the patient
- Initials or name of the dispensing pharmacist

Figure 1.6 - Sample Prescription Log

Serial # of Prescription	Date	Patient's Name	Prescriber's Name	Medication Name/Strength	Quantity	Pharmacist
00563	9/1/95	Lily Smith	Dr. William Jones	Digoxin .125 mg	30	Doug Brown
00564	9/1/95	Brad Peters	Dr. Louis Johnson	Furosemide 40 mg	90	Doug Brown
00565	9/1/95	David Watson	Dr. Jane Katz	Captopril 12.5 mg	90	Kelly Martin
00566	9/1/95	Cindy Roff	Dr. Judy France	Monopril 10 mg	30	Kelly Martin
00567	9/1/95	Alex Miller	Dr. Justin Nolan, D.D.S.	Acetaminophen Codeine #3	12	Doug Brown

Figure 1.7 - Sample Prescription Labels - Acute Condition

Kelly's Pharmacy
934 Rubble Road
New Madrid, MO 63333
Phone 314-965-5552

Maggie Molaskey 1/10/96
Amoxicillin suspension 250mg/5 ml 150cc

Give one teaspoonfull by mouth every eight (8) hours for ten days.
Shake Well. **Finish All of This Medication.**
Refill: 0 Mfr: Bio Rph:
Rx #: 0001433 Dr. Joann Martin
Caution: Federal law prohibits the transfer of this drug to any person other than the patient for whom it was prescribed.

Figure 1.8 - Sample Prescription Label - Chronic Condition

Kelly's Pharmacy
934 Rubble Road
New Madrid, MO 63333
Phone 314-965-5552

Ed Molaskey 1/10/96
Glyburide 2.5 mg #30
(DiaBeta)
Take one tablet by mouth every morning.

Refill: 3 Mfr: HR Rph:
Rx #: 0001438 Dr. Joann Martin

Caution: Federal law prohibits the transfer of this drug to any person other than the patient to whom it was prescribed.

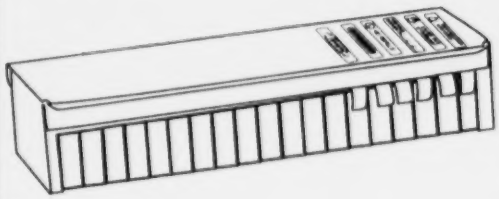
- Brand or generic drug name
- Drug strength
- Pharmacy phone number
- Drug expiration date
- Amount dispensed
- Refill information
- Address and DEA number of prescriber

Auxiliary Labels

Auxiliary labels are narrow, brightly colored strip labels that contain information to remind patients of the best use of the medication. See Figure 1.9.

Figure 1.9 - Auxiliary Labels

Figure 1.10 - Label Dispenser



Labels such as "Do Not Take if Pregnant" or "Refrigerate" provide helpful information to patients. Auxiliary labels should be placed neatly on the bottle and should not cover any of the information on the prescription label. Labels are often stored in dispensers such as the one in Figure 1.10.

How much to Dispense?

The basic principle in dose calculations is to always look for what is being asked. The answer you are looking for could be:

- The number of doses
- The size of the dose
- The total amount of the drug

The relationship between these three amounts can be expressed as:

$$\text{Number of doses} = \frac{\text{Total amount of drug}}{\text{Size of the dose}}$$

If you know two of the three variables, you can calculate the other one. These calculations are done with every prescription, and the pharmacy aide must be comfortable with finding all three of these variables. In many cases the pharmacy computer will make these calculations, and the aide must be able to verify, and in some cases adjust, the computer's calculations.

Directions for Use

Written prescriptions usually use a form of shorthand notation for the directions. Deciphering this code is like learning a foreign language. In fact, since many of the abbreviations come from Latin, it is learning a foreign language! Sometimes an individual prescriber or hospital will adopt certain abbreviations that are not widely known or accepted. This is not a practice that is encouraged because it can lead to extra questions and work to clarify these abbreviations. If there are unusual abbreviations used at your pharmacy, you will probably find out by asking your clinical supervisor as they come up.

The directions for use will usually include the following parts.

- Administration directions (e.g., take, insert, apply)
- Number of units in a dose and the dosage form (e.g., two tablets)
- Time or frequency of dosage (e.g., 9:00 a.m., twice daily)
- Route of administration (e.g., by mouth, on skin)

All of the items above should be on the label. Sometimes the directions include information on the length of time the medication is to be used (e.g., for 10 days, until all gone). The reason for the medication may be indicated, especially if it is to be used "as needed" or "prn" (e.g., as needed for pain, fever, or itching).

The aide must memorize the abbreviations and symbols in Appendix II in order to provide clear and accurate directions for use.

Selecting Physician Orders for the Pharmacy

As discussed earlier, physician orders are orders that list all new medication and other physician requests on the same sheet. Physician medication orders are most common in hospitals and long-term care facilities.

Support personnel should identify orders that start new drugs or change doses of current drugs and initiate changes in the patient's profile. Pharmacists often can detect additional information about the

patient's status from orders that do not appear to affect the pharmacy department. For example, an order which reads "place patient NPO except ice chips" (meaning nothing by mouth) may mean that oral drug therapies need to be changed to parenteral forms or temporarily discontinued even though they are not specifically mentioned.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 1: Process Information for Prescription Orders and Physician Orders

Activity Sheet

1. What the are the differences between a prescription order and a physician order?

   _____

   _____

2. List the four "rights" for processing a prescription.

   a _____

   b. _____

   c. _____

   d. _____

3. List four work areas likely to be found in most retail pharmacies.

   a. _____

   b. _____

   c. _____

   d. _____

4. List three types of information contained in the patient's profile.

   a. _____

   b. _____

   c. _____

5. What psychological phenomenon can occur when human beings see what they expect to see?

   _____

6. Who must verify a prescription entered by a support person before any medication is dispensed?

_____

7. Complete the following list of required elements on a prescription order.

   a. Prescriber's name, address, and DEA or BNDD numbers

   b. Patient identification information

      1. _____

      2. _____

   c. Date the prescription was written

   d. Precise identification of drug product

      1. _____

      2. _____

      3. _____

   e. Quantity is specified

   f. _____

   g. Number of refills

   h. If generic substitution is allowed

   i. _____

8. What elements are required for a complete prescription label? What additional element is needed on a prescription label for controlled substances?

_____

_____

_____

_____

_____

9. A patient needs to take 5 ml of liquid medication, three times a day for 10 days. How many ounces should be dispensed?

_____

10. A child is to receive 1/2 teaspoonful of a liquid medication every 12 hours. How long will a prescription for 4 ounces last?

_____

11. A 60 gram tube of an ointment contains _____ounces. If a patient is supposed to put two grams of ointment on her rash twice a day, how long will the tube last? _____

12. What should be printed on the label for the following prescriptions?

a. i tab po qid ac & hs

_____

b. i cap hs prn sleep

_____

c. sm amt to rash tid

_____

d. i gtt ou bid

_____

e. i tsp po q 8 h

_____

f. i cap po pc and hs

_____

g. i cap q 8 h prn itch

_____

h. 2.5 ml po q 8 h x 10 d for ears

_____

Clinical/Laboratory Activities

1. Locate a list of abbreviations approved by your pharmacy. Make a list of any special or unusual abbreviations encountered at your clinical site.

2. Create abbreviation flash cards for the abbreviations used in your pharmacy.

3. With your clinical supervisor's approval, process and enter into the computer information for a new prescription by following the steps in this lesson. Find out if your clinical site is required to print and file a prescription log at the end of each day.

Lesson 2:
Preparing Medications

Objectives:

A. Identify the preparation trail in a pharmacy.

B. Differentiate between medication packaging systems.

C. Prepare solid dosage forms for dispensing into bottles.

D. Prepare liquid dosage forms for dispensing into bottles.

D. Prepare topical, otic, ophthalmic, rectal, and vaginal medications for dispensing.

E. Prepare solid dosage forms for dispensing into unit dose packaging.

F. Prepare liquid dosage forms for dispensing into unit dose packaging.

Key Terms:

- Preparation trail
- Prescription bottle
- Unit dose form
- Medication Administration Record (MAR)
- Bubble pack
- Counting tray
- Prescription oval
- Pestle
- Mortar
- Compounding
- Repackaging
- Blister
- Repackaging log

As discussed in Unit III, many medications are available in more than one dosage form. Before the aide begins to help prepare prescriptions, it is vital that the different types of dosage forms are understood. Different dosage forms require different preparation steps and containers.

In many cases the dosage form dictates the route of administration. However, this is not always the case and it is dangerous to assume the route of administration based on the dosage form. The prescription must always be read very carefully for both pieces of information.

The Preparation Trail

Before learning how to prepare medications, it is important to know that prescription orders prepared by the aide should always be checked by the pharmacist for accuracy. The pharmacist needs to check each step and part of the prescription. The aide should arrange the materials so that the steps followed in preparing the prescription are apparent to the pharmacist. This is called the **preparation trail**.

Each pharmacy does the preparation trail a little differently. In general, the written prescription, the filled vial, the bulk container, and the label should be placed together. These may be placed in a bin for each prescription or arranged together on the counter. The pharmacist will document the final check of the filled prescription on the label and on the prescription file. In some pharmacies, the aide should bring the filled prescription to the pharmacist who then dispenses the drug and provides any needed counseling to the patient.

Some pharmacists prefer that the aide apply the prescription label and auxiliary labels to the product. Others prefer that the

label not be applied until the final check occurs, which makes it easier to correct errors on the label. Be sure you know which system the pharmacists in your pharmacy prefer.

Hand Washing

Medications and medication packaging must be sanitary and neat in appearance. Clean hands are an important part of achieving this goal. All pharmacies provide handwashing facilities near the dispensing area. It is not possible for the aide to wash his/her hands during the preparation of every prescription. Hand washing should be done frequently; at minimum every time the aide's hands get dusty or dirty from handling bulk items. The aide should use warm water and anti-bacterial soap.

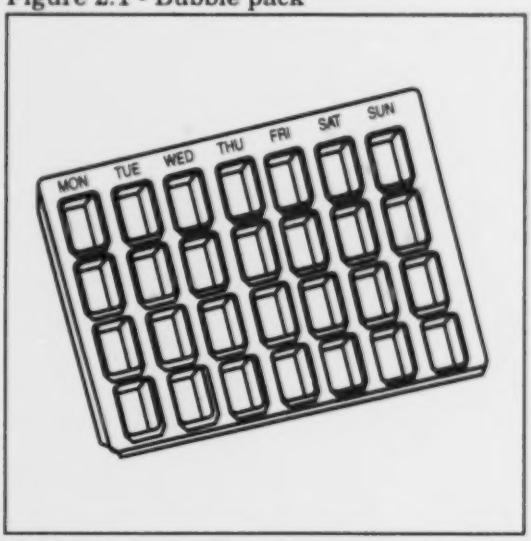
Medication Packaging Systems

Packaging and labeling of prescriptions differ depending on the dosage form and the location of the patient. All prescription packages meet strict regulations for protecting the medications inside from decomposing due to exposure to light or moisture. Many also meet the requirements for child resistance and poison prevention of the Poison Prevention Packaging Act discussed previously.

Patients who are at home generally receive medications in **prescription bottles** that contain many doses for the patient to self-administer. Filling medication in prescription bottles is the most traditional packaging system. Patients in hospitals usually receive medications in **unit dose form**. Each dose of medication required by the patient is packaged individually. The labeling of a unit dose does not include specific instructions for that patient. The specific instructions are printed on a list called the **medication administration record (MAR)**. All of the medication packages are dispensed into a drawer for that patient. The nurse can easily check whether or not the patient has received the drug by seeing if a particular package is missing and checking the MAR.

Patients who are in long-term care facilities (LTCF) or nursing homes may receive solid form medications in unit dose packaging that assists the LTCF staff in safely administering medications to many patients. These packages are called punch cards or **bubble packs**, as in Figure 2.1.

Figure 2.1 - Bubble pack



These packages consist of a plastic card with rows of circular or oblong holes in it. Each plastic bubble contains one dose of medication. The back side of the bubble has a thin foil or paper backing through which the medication is pushed or "punched." The arrangement of holes in the punch card is varied based on the schedule for administration. A punch card system requires the pharmacy to purchase special heat sealing equipment to seal the cards

and movable carts for storage and delivery of the filled cards.

Packages for drugs also vary with the dosage form. Liquid or topical dosage forms require different packages than solid dosage forms such as tablets and capsules. Usually the correct amount of the medication is measured into the appropriate container. In many cases, the manufacturer's package may be specially designed to enhance product stability or assist patients in administering the dose.

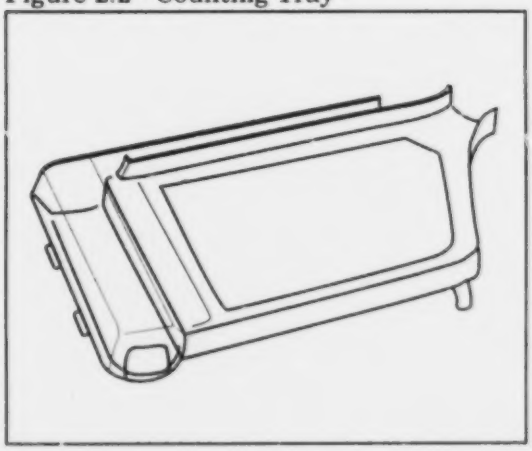
Always consult the pharmacist before opening a package that appears to be designed for direct patient use.

Preparing Solid Dosage Forms

The most common type of prescription that the pharmacy aide assists with is the oral solid dosage form. This type of prescription is filled by counting the correct number of tablets or capsules and placing them into an appropriately sized prescription vial.

A **counting tray,** as in Figure 2.2, is a tray that is used to count tablets or capsules. The solid dosage is poured into the counting tray and a spatula is used to push the counted tablets into the covered depression at the left of the counting tray. Counting by fives is efficient and accurate. After the correct number of tablets is counted, the cover is placed over the depression and any remaining tablets may be poured back into the bulk pharmacy container. Counting trays should be washed periodically throughout the day. The counted tablets are placed into the correct size prescription vial. When counting very expensive drugs, the tablets or capsules should be recounted to assure accuracy. The pharmacy's reputation may be called into serious question if the prescriptions are inadvertently shorted.

Figure 2.2 - Counting Tray



Steps of Procedure for Preparing Solid Dosage Forms for Dispensing into Bottles:

1. Obtain the prescription order and prescription label and verify the consistency between them.
2. Select the correct medication from stock by verifying the name strength and dosage form.
3. Wash hands.
4. Count tablets, capsules or other solid dosage form using a counting tray.
5. Place in correct container.
6. Choose correct closure.
7. Choose correct auxiliary label.
8. Arrange a preparation trail for the pharmacist's final check.

Preparing Liquid Dosage Forms

Liquid dosage forms are typically dispensed into prescription bottles. Another name for

a prescription bottle is a prescription oval. When preparing liquid dosage forms, it is important to remember that suspensions must always be shaken prior to dispensing.

Steps of Procedure for Preparing a Liquid Dosage Form for Dispensing into Bottles:

1. Obtain prescription and prepared label and verify the consistency between them.
2. Select the correct medication from stock by verifying the name, strength, and dosage form.
3. Wash hands.
4. Check to see if the bulk bottle label indicates that the liquid must be shaken and shake well if necessary.
5. Turn the bulk bottle so the label is turned into your palm. This is done to prevent any liquid that might drip down from ruining the label. Pour the medication into the prescription oval. Markings on the bottle will assist you in measuring the correct amount.
6. Measure the volume of liquid using a graduated cylinder.
7. Clean the side and the neck of the container if you drip or spill.
8. Choose correct closure.
9. Choose correct auxiliary labels.
10. Arrange a preparation trail for the pharmacist to check.

Reconstituting Oral Liquids

In some cases, you may need to reconstitute a powder to a liquid dosage form. Distilled water is always used. Minerals or impurities that may be present in tap water may react with the medication.

Steps of Procedure for Reconstituting Oral Liquids for Dispensing in Bottles:

1. Obtain prescription and prepared label and verify the consistency between them.
2. Select the correct medication from stock by verifying the name, strength, and dosage form.
3. Tap the bottle on the prescription counter to loosen the powder.
4. Wash hands.
5. Read the label to find out how much water to add.
6. Measure the total amount of water with a graduated cylinder.
7. Add only half of the amount of water at first.
8. Put the cap on tightly and shake well.
9. Turn bottle upside down and check to see if any powder is stuck to the bottom of the container.
10. Use a stirring rod to loosen any caked powder if needed.
11. Add the remaining liquid and shake once more.
12. Apply a "shake well" auxiliary label. Apply a refrigeration label if needed.

Prescription Processing, page 22

13. Arrange a preparation trail for the pharmacist to check.

When reconstituting oral liquids, you should be careful not inhale any dry powder that blows into he air since it may be irritating or lead to the development of allergies to medications. The pharmacist always checks the prepared prescription just as when preparing solid dosages.

Solid dosage forms may need to be ground or crushed to be reconstituted into a liquid dosage. A **pestle** is the club-shaped implement used for grinding and a **mortar** is a strong bowl-like vessel in which the medication is crushed by the pestle. A pharmacist or technician would most likely do this type of **compounding**. See Figure 2.3.

Preparing Topical, Otic, Ophthalmic, Rectal, and Vaginal Medications

Many medications are packaged by the manufacturer in dropper or applicator bottles and are not repackaged by the pharmacy. Most medications that are intended for topical administration are dispensed in the manufacturer's original packaging. Otic, ophthalmic, rectal, vaginal, and skin medications are often in this group. Sometimes a very small package is dispensed. In fact, the package may be smaller than a prescription label.

Figure 2.3 - Pestle and Mortar

One solution to this problem is to label a larger container with the full prescription information and place the small container inside. A small label, containing only the patient's name, may be placed on the actual medication. The package insert should usually be removed from the package and discarded, since it contains information that most patients will not find helpful and may even alarm them. Any pricing stickers on the package should also be removed. Again, the pharmacist checks the prepared prescription for accuracy.

Steps of Procedure for Preparing a Topical, Otic, Ophthalmic, Rectal and Vaginal Medications for Dispensing:

1. Obtain the prescription order and prescription label and verify the consistency between them.
2. Select the correct medication from stock by verifying the name, strength, and dosage form.
3. Wash hands.
4. Place label on medication package.
5. Remove and discard package insert.
6. Remove pricing stickers.
7. Apply correct auxiliary labels if needed.
8. Arrange a preparation trail for the pharmacist to check.

Preparing Unit Dose Medications

Unit dose medications are used in hospitals and some LTCFs. Each dose is packaged individually. Most tablets and capsules are available from the manufacturer in a unit dose package. At times, the needed medication is only available in bulk containers and must be packaged in a unit dose container in the pharmacy. This process is called **repackaging**. There are regulations which must be followed in order to safely repackage drugs. Repackaging may be done by the pharmacy for its patients, but a pharmacy is not allowed to sell repackaged medications to another pharmacy. Although many of the regulations are beyond the scope of this chapter, the procedures in the lesson should be followed carefully.

All repackaging must be done in a sanitary manner. The aide should wash his or her hands prior to beginning this process. The counter where the procedure takes place should be clean. All materials, the drug, containers, labels, and any other tools, should be gathered before starting the process. To avoid confusion and mislabeling, it is best if the aide is not interrupted by telephone calls or other orders during the repackaging process. Only one medication should be repackaged at a time. Medications could become contaminated with residue from the previous batch if the counter or equipment are not clean.

Repackaging Solid Dosage Forms

Solid dosage forms are packaged in bubble packs (Figure 2.1). Each plastic depression is called a **blister**. One dose should be placed in each blister. The bubble pack is sealed with a foil sticker. This may be a manual process or a repackaging machine may be used.

Specific labeling information is required on all repackaged dosage forms: The generic name of the drug, the manufacturer, the lot number, expiration date, date of repackaging, and the person who repackaged the dosage. Since the labels are very small, some pharmacies maintain a **repackaging log** of the date, the medication/strength, the number or amount prepared, the manufacturer's lot number and expiration date, the aide who repackaged the medication, and the pharmacist who checked for accuracy and the completeness of the label.

Steps of Procedure for Repackaging Solid Dosage Forms for Dispensing in Bubble Packs:

1. Obtain physician order and prepared labels.
2. Verify the consistency between the physician order and the label.
3. Enter appropriate information into the repackaging log.
4. Select correct medications from stock by verifying name, strength, and dosage form.
5. Wash hands.
6. Open bubble pack and place on the repackaging counter.
7. Count the number of tablets or capsules using a counting tray.
8. Obtain midpoint check by the pharmacist.
9. Place doses in the blisters.

10. Seal the bubble pack.

11. Apply the labels.

12. Arrange preparation trail for the pharmacist's final check.

Repackaging Liquid Dosage Forms

The same general procedure is used for packaging oral liquids in unit dose containers. Many common liquid drugs are packaged in the most common doses, but individual unit doses must be prepared for any unusual doses. This is often the case in pediatrics. The correct dose of the medication can be placed in a metal or glass cup or an oral syringe. A foil sticker or a metal cap seals the medication in the container. The patient opens the container and drinks the medication. Some pharmacies provide a little extra medication in order to allow for the amount of the liquid that remains in the container when the dose is administered to the patient. Some thick oral liquids are so sticky that a significant amount of the medication is left in the cup.

Another way of solving this problem is to package unit dose liquids in an oral syringe. Oral syringes resemble regular syringes except that the syringe tip is too small to fit a needle or any other IV equipment. This helps to prevent medication errors due to accidental administration of an oral medication by injection. Oral medications should never be packaged in regular injection syringes. Another advantage of using oral syringes is that patients who cannot drink from a cup can usually receive medications by syringe.

As always, any batch of repackaged oral liquids should be checked by a pharmacist before any doses are dispensed to patients.

Steps of Procedure for Repackaging Liquid Dosage Forms for Dispensing into Cups:

1. Obtain physician order and prepared labels.

2. Verify the consistency between the physician order and the label.

3. Enter appropriate information into the repackaging log.

4. Select correct medications from stock by verifying name, strength, and dosage form.

5. Wash hands.

6. Check to see if the liquid must be shaken and shake well if necessary.

7. Measure correct amount of liquid with a graduated cylinder.

8. Pour into metal or glass cup.

9. Seal the cup with a metal cap or foil seal.

10. Apply labels.

11. Arrange the preparation trail for the pharmacist's final check.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

After you have completed the activity sheets, you may take the written unit evaluation. A score of 80 percent indicates that you may proceed to the next unit. Check with your clinical supervising staff member for skill testing.

Lesson 2: Preparing Medications

Activity Sheet

1. Use a household teaspoon, a set of measuring spoons, and a syringe to measure 2.5 ml (or a half-teaspoon), of each of the following liquids: vanilla (an elixir), corn syrup (a syrup), milk (a solution), and Italian salad dressing (a suspension). Use each different type of measuring device with each different liquid. Measure the liquids into a 10 ml graduated cylinder. Which liquids are the easiest to measure? Were any of the measurements inaccurate? Which of the devices was most accurate?

2. What is a preparation trail? Why is it important to create a preparation trail?

3. Why are bubble packs used for prescriptions for patients in nursing homes?

4. Which oral liquid dosage form must be shaken?

Clinical/Laboratory Activities

1. What is a "pill"? In modern pharmacy, pills are rarely used. Ask your clinical supervisor to help you look up and understand the difference between a pill and a tablet or capsule.

2. With your clinical supervisor's approval, repackage a solid dosage form and record the information in the repackaging log at your site. Compare the repackaging log below with the log used at your site.

Date	Medication/Strength	# Prepared	Mfr	Lot#	Aide	Pharmacist	Label

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: Processing Information for Prescription Orders Rating _____

Comments: _____

_____

_____

Activity Sheet: Preparing Medications Rating _____

Comments: _____

_____

_____

Skill Sheet: Process Information for a New Prescription Rating _____

Skill Sheet: Prepare Solid Dosage Forms for Dispensing into Bottles Rating _____

Skill Sheet: Reconstitute Oral Liquids for Dispensing into Bottles Rating _____

Skill Sheet: Prepare Liquid Dosage Forms for Dispensing into Bottles Rating _____

Skill Sheet: Prepare Topical, Otic, Ophthalmic, Rectal, and Vaginal Medications for Dispensing Rating _____

Skill Sheet: Prepare Solid Dosage Forms for Dispensing into Unit Dose Packaging Rating _____

Skill Sheet: Prepare Liquid Dosage Forms for Dispensing into Unit Dose Packaging Rating _____

Written Unit Evaluation Score _____

Additional comments: _____

_____

_____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

Unit V

Maintaining the Pharmacy

This unit introduces the business of pharmacy. Principles of ordering, receiving, and restocking are discussed. The pharmacy aide is likely to perform these tasks regularly and will be a more effective assistant when the material in these lessons is thoroughly understood. The principles in this lesson are used in all types of pharmacies and for all areas of the pharmacy that provide drug products to patients.

Unit Lessons

Maintaining Pharmacy Stock

Marketing

Lesson 1:
Maintaining Pharmacy Stock

Objectives:

A. Identify the importance of maintaining different types of medications.

B. Manage inventory and order medications.

C. Inventory and restock floor drugs.

D. Check inventory for expired medications and recalled drugs.

E. Receive shipments of medication.

F. Store medications correctly.

G. Identify the procedure for returning merchandise.

Key Terms:

- Purchase order
- Min/max system
- Want book
- Expiration date
- Recalled drugs
- Lot number
- Formulary
- Manifest
- Packing slip
- Back order

Balancing Inventory Needs

The pharmacy manager has a difficult job balancing the inventory of drugs in the pharmacy. Good business management dictates that stock be kept as low as possible in order to decrease the amount of money the business has tied up in inventory. On the other hand, a pharmacy that does not have an adequate supply of drugs to sell will have a difficult time conducting business at all. Inventory procedures are set up to help the business resolve this problem.

Too much inventory is not good business practice. The pharmacy must pay the wholesaler or manufacturer shortly after the product is received, but the pharmacy will not receive payment until the products are sold to customers. Too little inventory means that every prescription filled causes the pharmacist to scramble to special order a medication, borrow from another pharmacy, or even refer a patient to another pharmacy. Although pharmacies often help each other out by borrowing and loaning medications, it is unprofessional to take advantage of those relationships.

Support personnel are very important to successful inventory management. Although this aspect of pharmacy practice may be the primary responsibility of a few individuals in the department, everyone in the pharmacy needs to cooperate and participate. In many pharmacies, a process called "just-in-time" ordering means that shipments of drugs are received every day. Pharmacy staff may have to find a new order, verify its accuracy, record its receipt, and place it into stock all within minutes of receiving a prescription for the drug. Since ordering drugs and checking in orders is time consuming, some pharmacies prefer to order only two or three times a week.

Managing Inventory and Ordering Medications

There are many different systems for deciding when a drug should be reordered. A few pharmacies have completely computerized reordering. When the amount of a drug in stock reaches a predetermined

level, a **purchase order** for that drug is automatically generated. A purchase order lists the products needed. The purchase order is sent to the vendor (or supplier) of the products and authorizes the vendor to supply the products and send a bill to the pharmacy. Purchase orders are issued carefully as each order means that the pharmacy is obligated to pay for the materials ordered. Most pharmacies have computers to assist pharmacy personnel with the inventory process.

One method for managing inventory is the minimum/maximum system (min/max system). The **min/max system** relies on a predetermined order point and an order quantity. The predetermined order point is the minimum amount that should be in stock. When the item reaches that point, an order is initiated. Shelf labels are placed to ensure that all personnel are aware of the minimum quantity. When removing a product, the minimum quantity should be checked. If there is not enough of the product, the purchasing person should be alerted. Often, a **want book** or want list is the method used to alert purchasing personnel of the need to reorder a product. A good rule of thumb for taking inventory is to see if there is enough product on the shelf to fill the prescription two times. If not, the product probably needs to be reordered.

Most medications are readily available from the pharmacy wholesaler. Usually, overnight service is standard or even same day in some locations. Some medications, especially controlled substances, require two to five days lead time. The pharmacy aide should never tell a patient that a drug will be available on special order without first checking with the pharmacist.

Floor Stock Medications

Pharmacy aides in hospitals or long-term care facilities may be asked to check floor stocks of medications. Some drugs are commonly used on an "as needed" basis, and this makes providing adequate amounts from the pharmacy supply difficult. These medications or supplies may be stored on the nursing units. Each unit has a list of the medications and supplies that are allowed on that unit. The lists are usually different from unit to unit, since different areas of the hospital care for different types of patients. The list has both the specific products and the quantity of each product. Sometimes the storage bins or shelves are labeled with the products and quantities. The aide will take an inventory of the products that are in stock and subtract that amount from the amount of each medication that the area is allowed to keep. The aide then returns to the pharmacy and collects the needed floor stock drugs. The pharmacist checks the order, and the aide returns to the unit and puts away the order.

For example, if the sixth floor, which usually cares for diabetic patients, is supposed to keep three glucagon kits on floor stock and the aide finds that there is only one available, then the aide should deliver two kits to the unit.

In some cases, the nursing staff will check the floor stock inventory and place an order with the pharmacy. Because floor stock medications are usually administered to patients without a pharmacist check, the aide must be especially careful in putting them away, so that nurses find them quickly, easily, and safely.

Checking Inventory for Expired or Recalled Drugs

At times, the entire pharmacy inventory must be counted and checked for expired drugs. The inventory includes OTC drugs as well. Accuracy in this task is essential. Usually this task is done in pairs; one person counts and the other records the count. If preprinted worksheets are used, care must be taken to record the correct package size. Some items may be counted by the package, others by the individual item. The **expiration date** is always printed on the package. The expiration date and lot number can help to identify when the product was manufactured. The expiration date is assigned by the manufacturer. The product's potency and appearance are guaranteed from the date of manufacture until the expiration date.

Once the expiration date has passed, the product is said to be expired, and under no circumstances should it be dispensed to a patient. If listed as just the month and year (e.g., expires 6/98) the product expires on the last day of the month, not the first day.

Expired drugs that have not been opened can usually be returned to the manufacturer. *Opened* expired drugs should be flushed down the toilet as soon as they expire. In all of these cases, the pharmacy aide should receive approval from the pharmacist before eliminating expired drugs from the pharmacy.

Another common inventory activity for the pharmacy aide may be checking the inventory for **recalled drugs**. A drug product that has been recalled has been reported to have a problem which means that the product should not be used by patients. Recalls are classified based on their potential to cause patient harm. Drug products may be recalled for many reasons. The most serious recalls often involve a contamination problem--microorganisms are detected in the drug product. A less serious recall might be a problem with a batch of tablets that crumble more easily than they should. Pharmacists may learn of a recall from the wholesaler, a manufacturer, professional newsletters, or other publications. Usually a particular batch of a product is affected by the recall. Each batch of drug has an individual **lot number**. The aide will check the product to see if any of that lot number is in stock. When any recall notice is received, the inventory should be checked. If none of the recalled product is in stock, it should be noted on the recall notice and the notice should be filed. If the recalled drug is detected, it should immediately be pulled from the stock, and the pharmacist will complete the paperwork needed to return it to the manufacturer. In some cases, patient records may need to be searched, so that patients may be contacted about the recall.

Receiving Shipments of Medications

A pharmacy aide is likely to help in receiving and storing shipments of pharmaceuticals. This can be a very good way to learn the business aspects of pharmacy. It will also help the aide to learn where all of the drugs in the pharmacy are stored. In practices where a formulary system is used, this process can help the aide learn which drugs are on the formulary. A **formulary** is a list of the drug products that are available for use in a particular pharmacy. Formularies are widely used in hospitals, and some managed health care groups (state Medicaid and some HMOs) use a formulary system in ambulatory patients. A committee of pharmacists and physicians decides which drugs are included in the formulary. Drugs not on the formulary require special approval if they are to be used.

The receiving process begins with checking the accuracy of the boxes received. The person receiving the order should count the boxes and check the address to be sure that all boxes are meant for the pharmacy. The form accompanying the shipment that describes the number of boxes is called a **manifest**. The courier delivering the shipment will ask for a signature on the manifest. This signature means that the correct number of boxes was received but has nothing to do with the contents of the boxes. Failure to verify the manifest could result in product shortages and billing problems. Each box should be inspected for signs of damage before the shipping manifest is signed. If signs of damage are seen, the shipment can be refused or the damage can be noted on the manifest. Signs of damage include torn boxes, smashed corners, wet spots, stains, leaks, or even the sound of broken glass.

The next step is to check the contents of the boxes. The shipper will enclose a receiving copy of the purchase order. A purchase order listing each product ordered is created at the time of the order. A purchase order typically has several copies: an original, one for the supplier, and one for the receiver. The receiving copy is used to check in the order. The received products must be checked against the receiving copy. They should be checked for the name, brand, manufacturer, dosage form, size of package, concentration or strength, and quantity. The expiration date of the products should also be checked. After checking in the order, the receiver should mark the copy "received" and sign it.

The **packing slip** goes into much more detail about the shipment than does the manifest. The manifest lists how many boxes are in the shipment, but the packing slip describes what specific items are in each box. Sometimes products are ordered but are not available from the supplier.

Some suppliers issue a **back order**, which is a promise to fill the order as soon as the product is available. Often, the pharmacy will have to get the out-of-stock product somewhere else and will not want or need it when it comes in, so the back-order will have to be canceled. Each supplier has different policies for handling back-orders. The pharmacist and the ordering personnel need to work together to solve back order problems.

If the receiving copy of the purchase order is not available, the packing slip that accompanies the order can be used to check in the order. The amounts received can be checked off and any damage noted. In either case, the person unpacking and checking in the order should sign the packing slip or receiving copy of the purchase order.

Steps of Procedure for Receiving a Shipment of Medication:

1. Count the boxes in the shipment. Verify addresses as belonging to the pharmacy.
2. Check the boxes for signs of damage.
3. Sign the manifest if the number and the condition of the boxes are acceptable. Note any problems on the manifest.
4. Find receiving copy of the purchase order.
5. Check each product against the receiving copy. Check for name of the product, brand, number, strength, size, and quantity. Mark the receiving copy as you locate each product in the shipment.

Storing Medications Correctly

Once the product has been received, it must be put away. Drugs with special storage conditions, such as refrigeration or freezing, deserve special attention and should be put away first. The expiration date should be checked against the product already in stock. If the new product expires later, which is usually the case, it should be placed on the shelf behind the older products. By doing this, the product with the **earliest** expiration date is used first. This process is called "rotating stock." If a product is expired, it should be removed from inventory immediately and placed in a separate area of the pharmacy. Expired drugs are usually returned to the manufacturer for credit, and the appropriate paperwork is filled out all at once.

Storage conditions for most drugs are not unusual. The term "controlled room temperature," means a temperature between 70-88°F. Drugs should also be protected from humid conditions. (You might consider the temperature and humidity of a bathroom medicine cabinet and decide that medications would be better stored in the kitchen or a hallway closet.)

One of the most important safety processes in putting stock away is developing the habit of reading the labeling carefully. It is very important to put products away in the right place. This prevents delays in filling prescriptions or orders and helps prevent errors.

When restocking over-the-counter preparations, the pharmacy aide may have additional considerations. The use of a plan-a-gram, which is a map of a particular area or shelf, may assist the aide in creating an orderly and appropriate display. The aide should not attempt to restock large quantities at one time. This may block customers' access to the pharmacy or other products on the shelf. As with prescription medications, the expiration dates should be checked and stock rotated. This is also a good time to clean or dust shelves and stock.

Some pharmacies need to apply price stickers to both over-the-counter products and prescription products. Price stickers should be placed consistently on an entire shipment of products, usually in a place where they will not cover any important labeling. If there is already an identical product on the shelf, the aide should check to be sure that both the old products and the new products have the same price. Any inconsistencies should be reported to the pharmacist or manager.

Many pharmacies do not price items individually, but rely on shelf labels to let the customer know the price. Obviously, it is very frustrating if the shelf labels are incorrect or missing. When restocking shelves, the aide should make sure that the shelf labels and the products are matched up correctly.

Steps of Procedure for Storing Prescription Medications:

1. Read labels for special storing instructions.
2. Put away any refrigerated products immediately.
3. Rotate stock so that medications with a later expiration date are stored behind medications with earlier expiration date.
4. Check to make sure that the medication is protected from extreme temperatures (if not refrigerated) and humidity.

Steps of Procedure for Storing Over-the-Counter Medications:

1. Read labels for special storing instructions.
2. Put away refrigerated products immediately.
3. Rotate stock so that medications with a later expiration date are stored behind medications with an earlier expiration date.
4. If necessary, apply price sticker to medication in a place where it will not cover any important label information.
5. Check for inconsistencies in price for both the old and new products. Report inconsistencies to the pharmacist or manager.
6. Check to make sure that the medication is protected from extreme temperatures (if not refrigerated) and humidity.
7. Check to make sure that the shelf labels and products are lined up correctly.

Returning Merchandise

There are many reasons why it may be necessary to return merchandise to the supplier. One reason is when merchandise is ordered in error, or the supplier filled the order incorrectly. Perhaps the intention was to order 10 bottles of 100 tablets, and 100 bottles were received. If a package has expired, the supplier may take back the drug if the package is unopened. Often, the supplier does not allow the return of *unopened* expired drugs, but the manufacturer will accept the return. As discussed, *opened* expired drugs cannot be returned to the manufacturer. Regardless of who is taking back the product, the procedure is roughly the same. An authorization to return the merchandise is obtained. This form requires that the name, strength, dosage form, number of packages of each product, and their costs be listed. Once the returned goods have been packaged and shipped, a copy of the list should be kept on file.

Some patients may ask the pharmacy to dispose of a medication that is unwanted. Most pharmacies provide this service, in an effort to help patients get unwanted and possibly unsafe drugs out of their homes.

Test Your Knowledge: Complete the following activity sheet to test your knowledge of the materials you have studied in this lesson.

Lesson 1: Maintaining Pharmacy Stock

Activity Sheet

1. Why is it important to maintain just the right amount of stock?

   _____

   _____

2. What is the min/max system of inventory?

   _____

   _____

3. What are the steps in receiving a shipment of medication?

   1. _____
   2. _____
   3. _____
   4. _____
   5. _____

4. If a product expires in 7/98, what is the actual date the product expires?

   _____

5. What does rotating stock mean?

   _____

   _____

6. What are two important factors to consider when storing a medication?

   a. _____

   b. _____

7. What is the aide's role in handling a drug recall?

_____

_____

_____

_____

8. What information is needed on a return goods authorization form?

_____

_____

_____

_____

Clinical/Laboratory Activities

1. In the floor stock example, glucagon is mentioned. Use *Facts and Comparisons* to understand what glucagon does for diabetic patients. What would happen if the floor stock inventory were zero and a patient needed glucagon? Discuss this situation with your clinical supervisor.

2. Ask your clinical supervisor if what type of inventory system your clinical site uses.

3. Spot-check the OTC drugs at your clinical site. Did you find any expired or inconsistently priced products?

4. With your clinical supervisor's approval, receive and store a shipment of medication.

5. Check your medicines at home for expired drugs. Are medications in your home stored correctly? (Consider temperature, humidity, and poison prevention in your answer.)

Lesson 2: Marketing

Objectives:

A. Identify the importance of maintaining a positive image for the pharmacy.

B. Identify factors that impact product placement.

C. Straighten and clean shelves.

D. Set up displays.

Key Terms:

- Plan-a-gram

Most of the information presented in this lesson is directed toward retail pharmacy. Aides who practice in hospitals may be able to detect a few ideas that are helpful in their practices.

Neatness Counts

Previously, the importance of maintaining a neat personal appearance was stressed. The appearance of the pharmacy is equally important. Areas visible to patients should always be kept clean. If patient education materials are kept, they should be neatly displayed. Straighten the chairs and pamphlet racks in the waiting area throughout the day.

The products available for purchase should be clean and neatly displayed. Patients must feel confident that they are getting a sanitary product and the most up-to-date treatment available. A package that is dusty or damaged does not meet either of these standards.

Customers must be able to find the products they need quickly. Usually this means that similar products should be kept together, so that the patient with a particular problem can easily find all of the medications that would be appropriate. It is important to avoid accidentally mixing up the order of medications when dusting shelves. Usually, the workers in the pharmacy are used to finding products in a certain place. Even if the order of product placement does not make sense to the pharmacy aide, avoid changing it without specific permission from the pharmacist or department manager.

Displays and Creativity

Putting away and dusting stock can be drudgery, but using that process to create an attractive display can be fun. The term "front and face" is sometimes used to describe the goal of straightening shelves. Since customers pick up the products at the front of the display, it empties quickly. Customers who come along later may think the shelf is empty. Bringing the remaining product to the front is part of the "front and face" job. The second part means that all of the products should be facing the same way on the shelf. Stock that is out of place should be returned to its correct location. This job is done at least daily, and more often in some stores. Moving stock from one location to another should not be done on a whim. Usually, product placement is carefully thought out by marketing managers.

The type of stock that is needed for the over-the-counter area of the pharmacy often varies with the seasons. Manufacturers sometimes run specials on products that are needed seasonally. For example, OTC cough & cold medications and lip balms should be displayed more prominently in the winter whereas sunscreens and allergy

medications may be displayed more prominently in the summer. The pharmacy then can plan to run a special sale price on these items. Often a unique display is planned to highlight the special price or a new product.

A **plan-a-gram**, or map of the display, is used to set up the display so that the most popular or profitable products are displayed to their best advantage. The pharmacy aide may need to be part carpenter in order to set up a special temporary shelving unit, and part artist in order to set up the display in an attractive way! The aide should be careful not to get in the way of customers while restocking or setting up a special display.

Test Your Knowledge: Complete the following activity sheet to test your knowledge of the materials you have studied in this lesson.

After you have completed the activity sheets, you may take the written evaluation for this unit. A score of 80 percent indicates that you may proceed to the next unit. Check with your clinical supervising staff member for skill testing.

Lesson 2: Marketing

Activity Sheet

1. Why is it important to maintain a neat and positive environment in the pharmacy?

_____

_____

2. What is "front and face?"

_____

_____

3. List three different items needed for the over-the-counter area in the winter. In the summer?

_____

_____

_____

_____

4. Visit three drug stores and identify three positive and three negative things about the over-the-counter area in each one.

_____

_____

_____

_____

Clinical/Laboratory Activities

1. Observe and discuss the shelf cleaning procedures in your clinical site. Are all the products removed the shelf in order to dust? Is a cleaning solution used? How often are the shelves cleaned or dusted in your clinical site?

2. With your clinical supervisor's approval, help to set up a seasonal display in your clinical site.

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: Maintaining Pharmacy Stock Rating _____

Comments: _____

_____

_____

Activity Sheet: Marketing Rating _____

Comments: _____

_____

_____

Skill Sheet: Receive Shipment of Medication Rating _____

Skill Sheet: Store Prescription Medications Rating _____

Skill Sheet: Store Over-the-Counter Medications Rating _____

Written Unit Evaluation Score _____

Additional Comments: _____

_____

_____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

Unit VI

Business Operations

This unit expands your knowledge of the business of pharmacy and general office skills. You will learn how pharmacies are paid for the products and services they provide. The pharmacy aide has an important role in this aspect of the pharmacy operation. Upon completion of this unit, you should be able to process sales transactions, maintain accurate files and logs, and write memos and business letters.

Unit Lessons

Process Sales Transactions

Third-party Transactions

Office Skills

Lesson 1:
Process Sales Transactions

Objectives:

A. Identify different types of sales transactions.

B. Process cash sales.

C. Process credit card sales.

D. Process in-store credit sales.

E. Identify the aide's role in processing a return

Key Terms:

- Cash transactions
- Credit card sales
- In-store credit

Sales Transactions

Pharmacy aides frequently process sales transactions. Many pharmacists see their role as one of dispensing medication and providing patient specific drug information. The professional relationship between the pharmacist and the patient is changed if the pharmacist also processes the sale, handling the financial part of the transaction. This is why many pharmacists prefer to arrange the pharmacy so that a support person handles the sales transaction. There are four types of sales transactions: cash, credit card, in-store credit, and third-party payment. Because third-party payments can be complicated, they are addressed in their own lesson.

Cash Transactions

Cash transactions are sales made with cash and checks. These are the simplest to handle and document. Paying for an item in a store means paying for both the item and the sales tax. In many states, including Missouri, prescription drugs are exempt from sales tax. This means the pharmacy does not collect sales tax on the cost of the prescription. However, there are many items sold in pharmacies that are subject to sales tax.

Calculating the Amount Due

Most cash registers automatically calculate the sales tax due. For those items where no sales tax is due, a separate key is used to tell the register not to calculate sales tax on that amount.

For example, a patient might bring to the register:

- an eye patch - $1.09
- a bottle of vitamins - $8.89
- an antibiotic prescription - $15.00

Sales tax needs to be collected on the eye patch and the vitamins, while the prescription is tax exempt. If the local tax is 6.5%, the total amount due is $25.63.

Figure 1.1 Calculating Amount Due

Item	Cost	Tax	Total
Eye patch	$1.09	$0.07 ($1.09 × 0.065)	$1.16
Vitamins	$8.89	$0.58 ($8.89 × 0.065)	$9.47
Prescription	$15.00	No tax	$15.00
Total	$24.98	$0.65	$25.63

Most large pharmacies prefer that only prescription drugs and health-related items be purchased at the pharmacy counter.

In a cash transaction, the customer will write a check or pay in cash. The amount received from the customer is entered into the register, and change is returned if necessary.

Making Change

Although cash registers automatically figure the amount of change a customer should receive, it is very important for the pharmacy aide to understand how to make and count back change. Power failures and computer malfunctions do occur!

When counting back change to the customer, begin with the smallest coins or bills first. For example, a customer gives you a $10 bill for a purchase totaling $7.83. The customer's change is $2.17. The customer should receive two pennies, one nickel, one dime, and two $1 bills. As you count the change back to the customer, you might say, "Seventeen cents makes eight dollars, and two dollars make ten." Or, you might count "nine" and 'ten" as you place each dollar in the customer's hand.

In another example, a customer gives you a $50 bill for a purchase totaling $32.50. The customer's changes is $17.50. The customer should receive two quarters, two $1 bills, one $5 bill, and one $10 bill. As you count the change back, you might say, "Fifty cents make $33." Counting the one's, "$34, $35." The five, "$40." The ten, "And $50."

Credit Card Transactions

Credit card sales are similar to cash sales. Credit cards can protect merchants, provide customers with convenience, and allow customers to delay paying for a purchase. When a customer uses a credit card to charge a purchase, the customer is promising to pay the credit card company the money owed. The credit card company pays the pharmacy the money owed and sends the customer a bill. The credit card company charges interest if the customer does not pay the bill right away.

Again, the cash register is used to calculate taxable and nontaxable charges. The patient's credit card is either imprinted on a paper form or scanned into the computer linked to the credit card company. The total charges are entered, and the customer signs a receipt acknowledging the charges.

In-store Credit Transactions

Some pharmacies maintain an in-store credit system. In an **in-store credit** system, prescriptions and general merchandise are charged to an in-store account, and patients are billed monthly. The wide-spread use of credit cards has decreased the need for individuals to have pharmacy accounts, although some pharmacies still maintain these types of accounts.

It is common for physician offices and long-term care facilities to have pharmacy accounts for medications and supplies that are not charged to individual patients. The pharmacy aide should learn where the account book is kept or learn to operate the computer program that contains this information. Some items charged to in-store accounts may require sales tax to be calculated.

Transaction supplies need to be kept near the cash register. The pharmacy aide is usually responsible for stocking this area with prescription bags, stapler with staples, pens, blank charge slips, signature logs, and notepads.

Returns

Customers may return merchandise for various reasons. The decision to accept a return is based on many factors. One important factor is whether or not the merchandise may be resold. No prescription drug product may be resold because of the possibility that it was stored improperly or was somehow altered while outside the pharmacy. Drugs that were sold to the customer after the expiration date should be accepted for return by the pharmacy. In most cases, the decision to credit a return will be made by the pharmacist or a manager.

There are many instances in which an aide may assist with a return. For purchases made with a credit card, the return is rung into the register, the patient's credit card is scanned into the register and the credit amount is issued on the credit card. For purchases made with cash, the return is rung into the register and the appropriate amount of cash is given to the customer. As with any removal of cash from the register, it may be necessary to obtain approval from the manager or pharmacist.

In some cases, the pharmacist or manager may issue a store credit toward the next purchase the customer makes in the pharmacy.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 1: Process Sales Transactions

Activity Sheet

1. What are the four types of sales transactions?

   a._____ b._____

   c._____ d._____

2. Cash transactions include sales made with _____ and _____.

3. When counting back change to a customer, begin with the _____ (coins, bills) first.

4. List two advantages to credit card transactions.

   a. _____

   b. _____

5. How much should be charged to the patient who has a prescription (tax free) costing $13.50, a package of diapers costing $10.95, a pacifier costing $3.50, and an OTC product for diarrhea that costs $5.99? Assume that the sales tax rate in your community is 6.5%. (Show your work.)

   _____

   _____

   _____

6. A customer purchases five items from the pharmacy totaling $23.02. The customer gives the pharmacy aide a $20 bill and a $10 bill. How much change does the aide need to return to the customer? What are the largest bills and coins possible to make this transaction? (Show your work.)

   _____

   _____

   _____

Clinical/Laboratory Activities

1. Practice counting change for a pharmacy purchase.

2. Ask your clinical supervisor to show you how to use the cash register. After you become familiar with its operation, practice using the cash register to complete sales transactions.

3. Under the direction of your clinical supervisor, process cash, credit card, and in-store credit sales transactions. Learn the pharmacy's policy for any errors that might occur during a transaction.

Lesson 2:
Third-party Transactions

Objectives:

A. Define third-party payer.

B. Identify types of prescription program sponsors.

C. Identify the two types of reimbursement sources.

D. Calculate patient cost-sharing amounts for prescriptions.

E. Process a third-party payer claim.

Key Terms:

- Third-party payer
- Medicaid
- Medicare
- Health Maintenance Organizations (HMOs)
- Preferred Provider Organizations (PPOs)
- Capitation fee
- Assignment of benefits
- Claim
- Co-payment
- Co-insurance
- Deductible

Third-Party Payer

As mentioned in the previous lesson, third-party payment is a type of sales transaction. This sales transaction is the most complicated form of payment. A **third-party payer** is defined as someone other than the patient who is responsible for the reimbursement of health services. The name comes from the three parties who are involved in this transaction: the patient, the pharmacy, and the payer. As insurance plans have begun to include prescription drug benefits, pharmacies have joined physician offices and hospitals in providing services to patients that are paid for by a third-party. In fact, over 50 percent of all prescriptions are paid for by third-party programs. There are many different types of third-party programs. They are explained in some detail in this lesson.

Program Sponsors

There are two types of third-party prescription program sponsors: government agencies and private insurers. The largest government program is **Medicaid**. This program provides health care for people with low incomes. Each state establishes its own eligibility criteria for the program. Medicaid accounts for more than 10 percent of all prescriptions, although this figure may be much higher for some pharmacies. **Medicare** is a federal program that provides health insurance for the elderly. At this time, Medicare does not provide prescription drug benefits. Private insurers may also provide prescription drug benefits. Pharmacies sign contracts known as "participating pharmacy agreements" in order to participate in these plans. The contracts specify the services that the patients are entitled to and the amount of reimbursement the pharmacy will receive.

In the past, third-party programs paid pharmacies for services and drugs provided. The more prescriptions a pharmacy filled, the more money the pharmacy made. Cost control efforts under these plans were limited to decreasing dispensing fees and encouraging the use of generic products.

Recently, third-party programs have moved toward managed health care. Managed care programs go beyond traditional

reimbursement to pharmacies and try to control prescription costs and encourage the best possible use of medications. Two examples of managed care programs are **health maintenance organizations (HMOs)** and **preferred provider organizations (PPOs)**. HMOs use only a few pharmacies which are paid a fixed amount for each patient in the plan. This rate of payment is known as a **capitation fee**. The pharmacy provides all prescription services to the patients in the plan regardless of the number of prescriptions or their cost. A PPO is a more common form of managed care in which a group of pharmacies contract to provide pharmacy services at discounted prices. Patients who choose to go to a pharmacy that is not on the preferred list pay a higher portion of their prescription costs.

Reimbursement Sources

There are two types of reimbursement sources for third-party prescriptions. Sometimes the pharmacy provides the prescription service to the patient and then directly bills the third-party. The third-party sends the payment directly to the pharmacy. This is known as **assignment of benefits**.

The second type of reimbursement requires the patient to pay the pharmacy at the time of service and then submit a bill or **claim** to the third-party. Patients may need the pharmacy to assist in preparing the claim form or to provide a special receipt. Most plans now make payments directly to pharmacies. Both types of plans generally require the patient to share the cost of each prescription. The difference is that one plan asks the pharmacy to collect a small payment while the others ask the patient to cover the entire cost until the claim is submitted.

Calculating Patient Cost Share

The patient's share may be in the form of a co-payment, co-insurance or a deductible. A **co-payment** is the most common form. It requires the patient to pay a fixed dollar amount for every prescription. For example, if the co-payment is five dollars, the patient pays five dollars for the prescription whether the price is five dollars or seventy dollars.

Co-insurance is similar to co-payment, except that the patient pays for a percentage of the prescription rather than a fixed dollar amount. For example, the plan may pay for 80 percent and the patient pays for 20 percent.

A **deductible** requires patients to pay for all of their prescription expenses until a specified dollar amount has been reached. For example, the plan may require the patient to pay the first $100 of prescriptions for the year. After the $100 limit has been reached, the plan pays for additional prescriptions.

Plans usually combine at least two of the above cost-sharing types. Generally, the patient pays an annual deductible and then pays for either a co-payment or a co-insurance on additional prescriptions. An example of this type of plan requires the patient to pay the first $100 of medical bills for the year (including prescriptions). After the $100 has been paid, the plan pays for prescription costs, with a $5 per prescription co-payment.

In many health plans, patients have an incentive to use certain health providers, including certain pharmacies. These providers are said to be "preferred." The plan encourages the use of preferred providers by paying more of the cost of a preferred provider. For example, a patient may have a $5 co-payment at a preferred

provider pharmacy and a $8 co-payment at a non-preferred provider pharmacy.

While the pharmacy aide will not be calculating prescription prices, it is interesting to note how it is done. Prescription prices are usually based on the cost of the drug product plus a dispensing fee. The cost of the drug product is often calculated as a percentage of the average wholesale price (AWP). A common formula for reimbursement is 90 percent of the AWP plus a dispensing fee. The dispensing fee covers the pharmacy department labor (including the pharmacy aide) and overhead expenses and allows a profit to be made. Since a portion of the aide's salary is charged to each prescription, the aide can see how important it is to do tasks in a timely manner.

Handling Third-party Prescriptions and Claims

Sales transactions for third-party payment require that the pharmacy collect and document the co-payment from the patient and then submit a bill to the third-party payer. As discussed, the bill that is submitted to the third-party payer is called a claim. It is easy to see that the accounting work for third-party prescriptions is burdensome. If done in a haphazard way, it can cause serious financial problems for the pharmacy. Accurate collection of the co-payment is an important first step, but since it is usually a small percentage of the overall cost of the prescription, an accurate and timely bill to the third-party payer must be generated. Fortunately, sending a bill to the payer may be one of the output functions of the pharmacy computer system. In these types of systems, the payer is billed instantly when the prescription is filled.

One of the first steps in dealing with third-party payment is to ask patients if they have third-party coverage when they first present the prescription. If you wait until they pick up the prescription to check this, you might have to re-do much of the computer entry to change from a cash sale to the correct third-party payer. If the patient states that he or she has coverage, ask to see the identification card for the plan. Use the information on the card to verify the information in the computer. Be sure to give the card back to the patient. If you are not using a computer system to submit the claim, the procedure may be to photocopy the card and file the photocopies alphabetically. Be sure to check the expiration date of the card to be sure the plan is still in effect. Your pharmacy will have a standard procedure for patients who do not have their third-party program cards with them. Follow the policy and ask the pharmacist for guidance if needed.

The pharmacy should maintain copies of all contracts and agreements that you can review if you need information on the data needed to submit a claim. If you need assistance, you can call the third-party payer office. Often, the phone number is listed on the patient's card.

When the prescription is given to the patient, the patient is asked to sign a log to verify receiving the prescription. Consistently maintaining this log is important because auditors from the third-party plan may compare the signature log against the claims submitted by the pharmacy. They must match exactly.

When payment is received by the pharmacy, the check is accompanied by a report describing the claims that the check is intended to pay. Any claims that are rejected should be followed up. If needed, additional information should be submitted

right away. Delays in receiving payments cost the pharmacy money.

Some programs require the pharmacy to telephone the third-party to receive approval to dispense certain very expensive medications. If the prescription is approved, an authorization number is provided. This number should be recorded in the patient's profile.

Electronic Claims Processing

The easiest method of submitting claims is called electronic claims adjudication. The pharmacy submits claims by modem at the time of dispensing. A modem is a device that is used for transmitting computer data over telephone lines. These systems decrease the lag time in payment and decrease common problems that lead to rejected claims. The computer assists the pharmacy in complying with the rules of the contract by rapidly verifying patient eligibility, calculating the prescription price, and determining whether the medication is covered.

Paper Claims Processing

Some plans require the pharmacy to submit paper claims, which are filled out by hand. The aide will need to be meticulously accurate in entering all numbers on the claim form. Plan numbers, patient identification numbers, and drug codes all must be accurately and legibly entered. Be sure that no required fields are left blank. If the information is not available, the claim will be rejected.

Rejected Claims

Rejected claims have to be resubmitted. Besides delaying payment to the pharmacy, the task of resubmitting claims is a tedious one, especially if the prescription was filled a long time ago. Backtracking to find the needed information is always harder when it is buried under newer prescription information. Sometimes, the pharmacy will decide to write off the loss rather than waste time resubmitting the claim. The pharmacist or business manager will make this expensive decision.

Test Your Knowledge: Complete the following activity sheet to test your knowledge and understanding of the materials you have studied in this lesson.

Lesson 2: Third-party Transactions

Activity Sheet

1. What is a third-party payer?

   _____

   _____

2. Who are the three parties that are part of a third-party prescription transaction?

   a. _____

   b. _____

   c. _____

3. What are the two types of reimbursement sources?

   a. _____

   b. _____

4. List the two types of prescription program sponsors.

   a. _____

   b. _____

5. What is the difference between a deductible plan, a co-payment, and co-insurance?

   _____

   _____

   _____

6. Which program covers prescriptions, Medicare or Medicaid?

   _____

7. How much money should be collected if a patient has a prescription plan that provides an 80 %/20% co-insurance of a prescription costing $46? How much if the prescription costs $10? (Show your work.)

_____

_____

_____

8. How much money should be collected if a patient has a prescription plan that requires a $5 co-payment for a prescription costing $46? How much if the prescription costs $10?

_____

_____

9. If a patient has a $100 deductible to meet, how much would the patient pay on a $58 prescription if no other prescriptions have been filled? How much would the patient pay if $90 of the deductible has been met? (Show your work.)

_____

_____

_____

Clinical/Laboratory Activities

1. Practice calculating cost-sharing amounts for third-party payer claims.

2. Under the direction of your clinical supervisor, process a third-party payer claim.

Lesson 3: Office Skills

Objectives:

A. Identify the importance of maintaining accurate files and logs.

B. File chronologically.

C. Maintain logs accurately.

D. Compose business letters and memos.

E. Identify office equipment.

Maintaining Accurate Files and Logs

Filing is likely to be a task that the aide will complete independently. It is important that this task be done accurately and consistently or no one else will be able to find the filed documents. In most pharmacies, patient records are kept in computer files and are fairly easy to retrieve. Business documents are a different matter. These documents are usually paper records and are very important in running the business.

Other types of records are important to keep the pharmacy in regulatory compliance. Controlled substance, OSHA, and tax records are examples of records that must be instantly retrievable or the pharmacy and pharmacists may be disciplined. As previously discussed, one of the most important logs in the pharmacy is the prescription log, which links the computer files and prescription numbers with the paper prescription records.

Chronological Filing

Most filing in the pharmacy is done chronologically. Separate files or notebooks contain each type of file, and the most recent documents go on top or toward the front. Consecutive numbers are often used to help identify the most recent records. The higher the number, the more recent the document. For example, a purchase order numbered 713 would be more recent than one numbered 688. The most important chronological log in the pharmacy is the prescription log. In a prescription log, each prescription is assigned a consecutive number, called a serial number (Refer to Figure 1.6 in Unit IV). In most pharmacies the prescription log links the paper copies of the prescriptions to the computer records, so it is easy to see that this log fulfills an important function if the computer is down.

Files or records are often located in many different places in the pharmacy, rather than in a central cabinet or on one shelf, as in some offices. Most pharmacies find that records are easier to keep current if records or logbooks are kept near the places they are used. So, narcotic records are near or inside the narcotic cabinet. Repackaging records are probably on the counter where repackaging is done. The purchase order log is on the buyer's desk. For every function in pharmacy, there is almost always a record keeping step that must be completed before the job is done.

Business Writing

The pharmacy aide may help the pharmacist with some routine business correspondence. Some examples include requesting a return goods authorization or sending a refund to a patient. In both of these situations, a phone call could also be used. The advantage of writing a letter is that it communicates the message *and*

Figure 3.1 - Example of a Letter to a Patient

Kelly's Pharmacy
2336 Rubble Road
Anytown, MO
(314) 965-5552

Today, 1996

Mr. Alfred Bamberger
1254 Richter Drive
Anytown, MO 68888

Subject: Refund for Prescriptions

Dear Mr. Bamberger:

Thank you for your recent payment of $112.00 on your in-store account. Your insurance company also paid for two prescriptions (Numbers 001465 and 001466), totaling $68.53, so we are refunding that portion of your payment. A check for $68.53 is enclosed.

Thank you for your business.

Sincerely,

Tammy Terence

Tammy Terence
Pharmacy Aide

TT

Enclosure

Figure 3.2 - Example of a Memo

MEMO

Today, 1996

To: Christine Christobal
Pharmacy Supervisor

From: Tammy Terence
Pharmacy Aide

Subject: Time Off

I would like to have the weekend of June 17 and June 18 off if possible for a family reunion. I have arranged to trade with Sam Bickmore who will work the 17th and 18th, if I work the 23rd and 24th for him. Please let me know if this schedule change is OK with you. If I know by June 2, I can get a bargain on a plane ticket.

Thanks for your help with this.

TT

copy: Sam Bickmore

provides a record of the communication, whereas a telephone call relates the message but provides no written record that the communication occurred.

A letter may follow the most simple format in terms of layout. More important is the correct spelling of all the words in the letter and the use of correctly structured and grammatical sentences. A letter is most effective if it is addressed to a specific person in an organization, not "Dear Sir." Figure 3.1 is an example of a letter to a patient that you may prepare in the pharmacy.

Aides may also need to write memorandums occasionally. A memorandum, or memo, is used for less formal communication between people within the same organization. Memos are not meant to be a hassle for employees, but they are helpful in documenting their actions. For example, your supervisor would appreciate getting a memo with your schedule request rather than a handwritten note. Writing a memo and keeping a copy means that you have a way to prove that you really did ask for a particular day off. If you stick a note to the supervisor's desk, you take a chance that it will be lost and your request will not be scheduled. If you mention another person in your memo or another person is involved in the subject of your memo, you should send that person a copy. Figure 3.2 is an example of a memo that you may write to your supervisor.

Office Equipment

The pharmacy has certain business machines that are important for daily operations. A fax machine may be used to receive orders from prescribers or to communicate with vendors. Vendors who interact with pharmacy staff are typically salespeople representing pharmaceutical companies. A copier may be used to make copies of patient education handouts or to copy an article from a journal. An answering machine may answer the telephone if all the lines are busy. The telephone system probably has several features that are helpful. Many people also use beepers or cellular phones for communication.

The aide needs to know if these machines are used, how to use them, and how to perform routine maintenance, such as refilling paper in the copier. It is aggravating for coworkers if an unskilled user breaks a piece of office equipment instead of asking for help. It can also be aggravating for a member of the team to try to avoid certain tasks by not knowing how to operate the equipment. You should find out what types of office machines you need to know how to operate right away.

Machines such computers, copiers, and fax machines have created an interesting debate about patient confidentiality. The aide should be aware of the need to be extra careful with patient records, especially those that identify patients by name. In fact, a new piece of office equipment for many pharmacies is a paper shredder!

Test Your Knowledge: Complete the following activity sheet to test your knowledge of the materials you have studied in this lesson.

After you have completed the activity sheets, you may take the written unit evaluation. A score of 80 percent indicates you may proceed to the next unit. Review any materials incorrectly answered.

Lesson 3: Office Skills

Activity Sheet

1. Why is it important to maintain accurate files?

   _____

   _____

2. Write a memo that asks your supervisor for every Tuesday night off, starting August 15, so that you can enroll in a computer class. Ask if the hospital is able to reimburse you for the $200 tuition for the course. You will be learning about the Internet in the course. Describe how this will benefit the pharmacy.

3. Your pharmacist asks you to write a letter to a wholesaler asking them to authorize return goods for a 100-tablet bottle of Goroxacin®, which was damaged in a shipment received on 5/26/95. Since you speak to her frequently, you know that Jennifer Smiley is the person who runs the return desk.

Clinical/Laboratory Activities

1. With direction from your clinical supervisor, prepare letters and memos at your clinical site. Ask your clinical supervisor to check your work.

2. Check out the filing system at your clinical site. What system or systems are used to file patient information, ordering information, and office records?

   _____

   _____

3. Practice using the office equipment at your clinical site. Discuss what measures you might take in order to maintain patient confidentiality when using computers, copiers, and fax machines.

Unit Checklist

Student Name _____ Overall Unit Rating _____

Activity Sheet: Process Sales Transactions Rating _____

Comments: _____

_____

_____

Activity Sheet: Third-party Transactions Rating _____

Comments: _____

_____

_____

Activity Sheet: Office Skills Rating _____

Comments: _____

_____

_____

Written Unit Evaluation Score _____

Additional Comments: _____

_____

_____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

Appendix I

Measurement Systems and Abbreviations

I. Avoirdupous System

A. Volume or liquid measurement

1. Drop - gtt
2. Teaspoon - tsp or t
3. Tablespoon - Tbs or T
4. Ounce - oz or oz.
5. Cup - c
6. Pint - pt.
7. Quart - qt, or qt.
8. Gallon - gal.

B. Weight

1. Ounce - oz or oz.
2. Pound - lb.

C. Length

1. Inch - in
2. Foot - ft
3. Yard - yd

II. Metric System

A. Volume or liquid measurements

1. Milliliter - ml
2. Cubic centimeter - cc
3. Liter - l

B. Solid weight measurements

1. Gram - g or gm
2. Milligram - mg
3. Kilogram - kg
4. Microgram - mcg

C. Length

1. Meter - m
2. Centimeter - cm
3. Kilometer - km
4. Millimeter - mm

III. Apothecary System

Note: The apothecary system is an older system of measurement that is rarely used today. The pharmacy aide may need to occasionally convert to the apothecary system.

A. Volume or liquid measurements

1. Minim - m, min
2. Fluid dram - dr, ʒ
3. Fluid ounce - oz, ℥
4. Pint - pt.
5. Quart - qt.
6. Gallon - gal.

B. Solid weight measurements

1. Grain - gr.
2. Dram - dr, ʒ
3. Ounce - oz, ℥
4. Pound - lb.

C. Rules for writing in the apothecary system

1. Lowercase roman numerals are used and follow the unit of measurement (e.g., gr v means 5 grains; ℥ iii means three ounces)
2. The symbol ss may be used for one-half (e.g., gr iss means 1 1/2 grains; gr viss means 6 1/2 grains)
3. All other fractions are written with arabic numbers and may precede the unit of measurement (e.g., 1/150 gr. or 3 1/4 gr.)

IV. Measurement Equivalents

Avoirdupous	Metric	Apothecary
A. Liquid		
1 drop (approx.)	0.06 milliliter	1 minim
15 drops (approx.)	1 milliliter (1 cubic centimeter)	15 minims
1 teaspoon (tsp.)	5 milliters (5 cc)	1 fluid dram
1 dessert spoon	10 milliters (10 cc)	2 fluid drams
6 tsp/2 Tbsp/1 oz.	30 milliters (30 cc)	1 fluid ounce
4 oz/juice glass	120 milliters (120 cc)	4 fluid ounces
16 Tbsp/8 oz/1 Cup	240 milliters (240 cc)	8 fluid ounces
2 cups/1 pint	500 milliters (500 cc)	1 pint (16 ounces)
4 c/2 pt/1 quart	1000 milliters (1000 cc)	1 quart/2pts. (32 ounces)

	Avoirdupous	Metric	Apothecary
B.	Dry		
	1/2 tsp.	2000 mg/2 gm	30 gr.
	1/4 tsp.	1000 mg/1.0 gm	15 gr.
	1/6 tsp.	600 mg/0.6 gm	10 gr.
	1/8 tsp.	500 mg/0.5 gm	7 1/2 gr.
		300 mg/0.3 gm	5 gr.
		250 mg/0.25 gm	4 gr.
		200 mg/0.2 gm	3 gr.
		150 mg/0.15 gm	2 1/2 gr.
		120 mg/0.12 gm	2 gr.
		100 mg/0.10 gm	1 1/2 gr.
		60 mg/0.06 gm	1 gr.
		50 mg/0.05 gm	3/4 gr.
		30 mg/0.03 gm	1/2 gr.
		15 mg/0.015 gm	1/4 gr.
		10 mg/0.010 gm	1/6 gr.

Appendix II

Abbreviations and Symbols

Routes of Administration

AD - right ear
AS - left ear
AU - both ears
ID - intradermal
IM - intramuscular
inh - inhaled
IV - intravenous
Ng - nasogastric
OD - right eye
OS - left eye
OU - both eyes
PO - "per os;" orally, by mouth
PR - per rectum; rectally
SL - sublingual
SQ - subcutaneous
Top - topical
vag - vaginally

Symptoms and monitoring

Ax - allergies
Bm - bowel movement
BP - blood pressure
c/o - complaints of
CC - chief complaint
Dx - diagnosis
H & P - history and physical
HA - headache
HR - heart rate
ht - height
Hx - history
I & O - intake and output
N - nausea
NKA - no known allergies
NKDA - no known drug allergies
NPO - nothing by mouth
PE - physical exam
RR - respiratory rate
temp - temperature
TPR or "vitals" - temperature, pulse, respiratory rate

V - vomiting
wt - weight
℞ - prescription; treatment

Medication Names

AMP - ampicillin
APAP - acetaminophen
ASA - aspirin
Ca - calcium
DES - diethylstilbestrol
DOSS - dioctyl sodium sulfosuccinate
EES - erythromycin ethyl succinate
Epi - epinephrine
F - fluoride
FA - folic acid
Fe - iron
$FeSO_4$ - ferrous sulfate
HCTZ - hydrochlorothiazide
INH - isoniazid
K - potassium
KCl - potassium chloride
MOM - milk of magnesia
NSAID - nonsteroidal anti-inflammatory drug
NTG - nitroglycerin
Pb - phenobarbital
PEN or PCN - penicillin
SMZ/TMP - sulfamithoxazole/trimethoprim

Dosage Forms

cap - capsule
cr - cream
CR - controlled release
DS - double strength
elix - elixir
LA - long acting
ped - pediatric
SA - sustained action
sol - solution
SR - sustained release
supp - suppository
susp - suspension
syr - syrup
tab - tablet
TR - timed release
ung or oint - ointment

Time and Frequency

q̄_h - every _ hrs
ā - ante; before
ac - ante com; before meals
ad lib - at pleasure; as desired
am - morning; before noon
amt - amount
ASAP - as soon as possible
bid - bis in dia; twice daily
D/C - discontinue, discharge
DAW - dispense as written (no generic substitution)
hr - hour
hs - hora somnia; bedtime
NR - no refill
pc - post com; after meals
pm - after noon, evening
p̄ - post; after
prn - as needed
q day; qd - every day
q - every
qid - quatris in dia; four times a day
qod - every other day
STAT - immediately; emergency (should be reserved for life-threatening situations)
tid - tris in dia; three times a day
wk - week

Written Unit Evaluation

Student Name_____ Date _____

Circle the letter that corresponds to the best answer.

1. Illegal conduct _____ remain ethical.

   a. cannot
   b. can
   c. will usually
   d. will always

2. A(n)_____is an employee of a large pharmacy whose main duties include ordering and maintaining inventory.

   a. Aide
   b. Technician
   c. Researcher
   d. Buyer

3. Which type of pharmacy does NOT care for patients at home.

   a. Home care
   b. Ambulatory
   c. Retail
   d. Hospital

4. Which of the following is NOT a desirable personal grooming standard?

   a. Bathe before going to work.
   b. Wash hair every two to three days.
   c. Wear the same lab jacket for 7 days between washings.
   d. Wear makeup in moderation.

5. The Government agency responsible for protection of employees within the workplace is the:

   a. American Pharmaceutical Association
   b. Center for Disease Control and Prevention
   c. Department of Health and Human Services
   d. Occupational Safety and Health Administration

6. A_____ is a chemical which is known to cause cancer.

   a. Teratogen
   b. Carcinogen
   c. Reactive
   d. Agent

7. For safety information about the materials in a specific product, the pharmacy aide should refer to:

   a. Incident reports.
   b. A more experienced employee.
   c. A disaster plan.
   d. The MSDS.

Match the terms in Column B with the definitions in Column A.

	COLUMN A		COLUMN B
____8.	May be trained on the job, at community college, or in the military.	a.	Pharmacist
____9.	Additional training in the clinical use of drugs.	b.	Technician
____10.	Counsels patients on the best use of medications, possible side effects.	c.	Clerk
____11.	Issues stock purchase orders, checks in orders, puts away stock.	d.	Buyer
____12.	Rings up sales, stocks shelves, usually few prescription department duties.	e.	Doctor of Pharmacy

Match the terms in Column B with the definitions in Column A.

	COLUMN A		COLUMN B
____13.	Study of how drugs are used to treat diseases in patients	a.	Therapeutics
		b.	Pharmacology
____14.	Study of the design of dosage forms	c.	Chemistry
____15.	Study of how drugs move in the body, calculations allow scientific adjustment of doses	d.	Pharmaceutics
		e.	Pharmacokinetics
____16.	Study of the relationship between the molecular structure of drugs and their effects on the body		
____17.	Study of the effects of drugs in the body		

Match the type of conduct in column B with the action described in Column A. Write the correct answer in the blank space provided.

	COLUMN A	COLUMN B
____18.	People are treated as inanimate objects.	a. Ethical
____19.	Enhances self-respect.	b. Unethical
____20.	Use or addiction to drugs.	c. Illegal
____21.	Maintains confidentiality.	
____22.	Brings harm to others.	
____23.	Not renewing a required license or certificate.	

Circle the letter that corresponds to the best answer.

24. The agency that reviews research on new drugs, or new uses for old drugs is:

    a. FDA.
    b. DEA.
    c. JCAHO.
    d. OSHA.

25. _____ is the agency that regulates the everyday access of controlled substances through legal channels.

    a. FDA
    b. DEA
    c. JCAHO
    d. OSHA

26. The Board of Pharmacy:

    a. Decides if a drug can be sold over-the-counter.
    b. Decides how seasonal displays should be arranged.
    c. Examines and licenses applicants.
    d. Adopts and revises rules and regulations necessary to affect the Nursing Practice Act.

27. An FDA approved drug is a drug proven to be _____.

    a. Free of side effects
    b. Inexpensive and readily available
    c. Hazardous
    d. Safe and effective

28. Drugs which have no accepted medical use in the United States and have a high potential for for abuse are listed in the Controlled Substances Act (CSA) as:

    a. Schedule I (C-I).
    b. Schedule II (C-II).
    c. Schedule III (C-III).
    d. Schedule IV (C-IV).

Written Unit Evaluation

Student Name_____ Date _____

Circle the letter that corresponds to the best answer.

1. If a patient phones and tells the pharmacy aide that she has a rash, the aide should:

   a. Tell the patient to call back later because the pharmacist is busy.
   b. Tell the patient to stop all medications immediately.
   c. Ask the patient to hold while you pull up the patient's profile on the computer screen and get the pharmacist.
   d. Ask the patient to report the rash to her doctor.

2. If a caller tells the pharmacy aide she wants to speak to the pharmacist immediately, the aide should:

   a. Put the pharmacist on the phone right away.
   b. Ask the caller to hold while the aide checks with the pharmacist.
   c. Tell the caller that the pharmacist will call her back.
   d. Explain politely that the pharmacy is really busy now and ask her to call later.

3. The most professional way to put a caller on hold is to say:

   a. "Can you hold for two or three minutes?" Wait for a response.
   b. "Hold please," then there is no need for a response, since you asked the caller to hold politely.
   c. "I am putting you on hold now," and immediately put the caller on hold.
   d. "Hold for a few minutes," so that the caller knows that finding an answer may take an unknown period of time.

4. When a pharmacy aide places a call to a patient's home, the aide should always:

   a. Explain the entire situation to the first person who answers the phone.
   b. Hang up if the person doesn't answer in three rings.
   c. Ask to speak to a specific person, by title and last name.
   d. Any of the above are acceptable.

5. If a patient has a common name like "James Williams," the aide can confirm that the correct patient's profile has been selected by asking the patient for:

   a. His birth date
   b. His social security number
   c. His address
   d. Any of the above

6. A co-worker has asked you to cover while she takes an early lunch three times this week. Usually the aides take turns choosing who goes to lunch first, so you are doing her a favor by letting her go early. You heard her talking about her daughter being sick this week when you hung up your coats this morning. You think your co-worker will stop asking you to cover for her after her daughter gets well. What method of problem solving would be MOST appropriate in this situation?

   a. Avoidance -- you suspect that your co-worker will start sharing the lunchtime choice again as soon as her daughter is over her illness.
   b. Mutual problem solving -- you should ask your co-worker for details about the child's illness and how long she expects this to go on.
   c. Mediation -- Letting her choose first every week is not fair, and you need to make sure that you get to choose first an equal number of times. You ask your supervisor to meet with you and your co-worker.
   d. Any of the above would be acceptable -- none is better than the others.

7. A customer asks you where the Pedialyte® is kept. The best answer is:

   a. "I do not know that yet. I just started here last week."
   b. "It is in the baby formula department in aisle 23."
   c. "I will call customer assistance to help you find it."
   d. "It is kept near the baby formula. The pharmacist likes to talk to customers who need that product, to make sure they know how to use it. If you like, I can let her know that you are waiting."

8. A patient who had prescriptions filled for cancer chemotherapy drugs does not want to discuss the treatment at the pharmacy because she is in a hurry and is feeling sick from her radiation treatment. Which of the following methods of meeting this patient's medication needs is NOT appropriate?

   a. Use all appropriate auxiliary labels.
   b. Offer a pharmacist's services by telephone -- consider making a telephone appointment for the patient and pharmacist to talk.
   c. Allow the patient's husband to use the pharmacy references to look up her medications.
   d. Provide written handouts about each medication.

9. Mediation should be used when:

   a. You feel the problem might be solved without any course of action.
   b. You feel the problem could be solved after a discussion between you and your co-worker.
   c. You feel that you and your co-worker need a third-party to hear and help solve your problem.
   d. You want to prove that you are right and your co-worker is wrong.

10. Over-the counter medications are:

   a. Medications that are safe for all patients.
   b. Medications that may be safe for some patients.
   c. Medications that have no side effects.
   d. Medications that are less effective than prescription drugs.

11. A customer asks you what he should buy for his headache. You should:

   a. Recommend an over-the counter product. After all, customers can choose for themselves.
   b. Ask another pharmacy aide what he/she recommends. Two opinions are better than one.
   c. Direct the customer to the headache medications and tell him that the pharmacist can recommend a medication that is right for him.
   d. Tell the customer that he should see his doctor.

12. If a customer is not receptive to your friendly greeting it is most likely that:

   a. He/she is not feeling well.
   b. He/she does not want your help.
   c. You were not being friendly enough.
   d. He/she should be referred to the pharmacist immediately.

13. Choose the most appropriate way to close a patient interview.

   a. "Thanks! Have a great day!"
   b. "Thanks for answering all of these questions. I know that you must not be feeling very well from your radiation treatment and diarrhea."
   c. "Thank you for answering all these questions. You really don't look sixty years old!"
   d. "Thank you for answering all of these questions. Since your insurance has changed, we needed to update our files."

14. Nonverbal communication

a. Always enhances verbal messages.
b. Can contradict or enhance verbal messages.
c. Is not appropriate in the pharmaceutical field.
d. Is always more effective than verbal communication.

Match the definitions in Column B with the terms in Column A.

COLUMN A		COLUMN B	
____15.	Involves another person, requires privacy and time.	a.	Mutual problem solving
____16.	Requires agreement to work on the problem, time and privacy.	b.	Mediation
____17.	Effective for short-term problems that are likely to go away on their own.	c.	Avoidance

Written Unit Evaluation

Student Name_____ Date _____

Match the liquid dosage form in Column B with its characteristics in Column A.

COLUMN A		COLUMN B	
		a.	Solution
____1.	Alcohol	b.	Syrup
____2.	Shake well	c.	Elixir
____3.	Drug dissolved in water	d.	Suspension
____4.	May crystallize if refrigerated		

Match the solid dosage form in Column B with its characteristics in Column A.

COLUMN A		COLUMN B	
____5.	Cannot be divided	a.	Tablet
____6.	May crumble if it gets wet	b.	Capsule
____7.	Gets sticky if it gets wet		
____8.	Tastes better		
____9.	Can be divided		
____10.	May be slightly faster acting		

Circle the letter that corresponds to the best answer.

11. The abbreviation NDC stands for:

    a. No Drug Concentrations.
    b. Negative Drug Comparison.
    c. National Drug Code.
    d. Nothing Done Currently.

12. All of the following are *clinical* factors which affect the choice of which drug to prescribe, EXCEPT:

    a. Patient history.
    b. Other medications the patient is taking.
    c. Cost of the drug.
    d. Side effect profile of the possible drugs.

13. If a medication is not located in its expected location in the pharmacy, the aide should look:

    a. In the refrigerator.
    b. On the fast mover or speed shelf.
    c. On the prescription counter.
    d. All of the above

Match the monitoring parameters in Column B with their characteristics in Column A.

COLUMN A		COLUMN B	
____14.	Having an elevated temperature	a.	Hypotensive
		b.	Febrile
____15.	Showing signs of decreased pain	c.	Tachypneic
____16.	Having an elevated heart rate	d.	Analgesia
		e.	Tachycardic
____17.	Having low blood pressure		
____18.	Having a rapid breathing rate		

Match the terms in Column B with the definitions in Column A.

	COLUMN A		COLUMN B
____19.	Inserted into the nose	a.	Sublingual
____20.	Applied to the eye	b.	Oral
____21.	Applied to the ear	c.	Inhalation
____22.	Under the tongue	d.	Intravenous
____23.	Breathed into the lungs	e.	Rectal
____24.	By mouth	f.	Vaginal
____25.	Inserted into the vagina	g.	Topical
____26.	Inserted into the rectum	h.	Nasal
____27.	Injected into a vein	i.	Ophthalmic
____28.	Applied to the skin or mucous membrane.	j.	Otic

Circle the letter that corresponds to the best answer.

29. Antibiotics differ in:

    a. Ability to kill bacteria.
    b. Number of times a day they must be taken.
    c. Side effects.
    d. Any of the above

30. Brand name drugs are typically:

    a. Less expensive.
    b. Not approved by the FDA.
    c. Of high quality.
    d. Exactly the same as generic drugs.

31. Over-the-counter drugs are sometimes stored behind the prescription counter because:

    a. They are not FDA approved drugs.
    b. The pharmacist may want to discuss the product with the customer.
    c. The pharmacist wants to save the product.
    d. All of the above.

32. Generic medications:

    a. Should be tried by all patients.
    b. Are always of lower quality.
    c. Are frequently advertised.
    d. Are not developed with new technology but they may be developed with innovations adapted from brand name companies.

33. Medications that act locally:

    a. Usually have fewer side effects than systemic medications.
    b. Have no side effects.
    c. Have many side effects.
    d. Are absorbed into the blood stream and delivered to its site of action.

Written Unit Evaluation

Student Name_____ Date _____

Match the "rights" in Column B with their characteristics in Column A.

	COLUMN A		COLUMN B
____1.	Safe, effective, least costly drug for patient condition	a.	Right drug
____2.	Not too early or too late; correct number of doses per day	b.	Right time
____3.	Too much may cause toxicity; not enough may cause treatment failure	c.	Right patient
____4.	No error made in dispensing or administration	d.	Right dose

Match the retail pharmacy area in Column B with the tasks in Column A.

	COLUMN A		COLUMN B
____5.	Dispense prescriptions; discuss patient questions, collect payment	a.	In-window
____6.	Finished prescriptions stored until the patient returns	b.	Data-entry area
____7.	Greet patients, conduct interviews	c.	Out-window
____8.	Counting, pouring	d.	Pick up area
____9.	Enter prescriptions into the computer	e.	Preparation area

Match the directions for use in Column B with the label directions in Column A.

	COLUMN A		COLUMN B
____10.	Take one or two tablets by mouth every 4-6 hours as needed for pain.	a.	i tsp tid for 10 d
____11.	Take one (1) teaspoonful three (3) times a day for 10 days.	b.	to rash tid
____12.	Take one tablet after meals and at bedtime.	c.	i tab bid (8a, 2p)
____13.	Insert one suppository at bedtime.	d.	ii puffs q 6 h
____14.	Apply to rash three times a day.	e.	i supp hs
____15.	Inhale two puffs every six (6) hours.	f.	i po pc &hs
____16.	Take (1) tablet twice a day at 8 am and 2pm.	g.	i-ii q 4-6 prn pain

Circle the letter that corresponds to the best answer.

17. A prescription for amoxicillin 500mg tablets has the directions take one every eight hours for ten days. How many tablets should be dispensed?

    a. 300
    b. 40
    c. 30
    d. 20

18. A prescription for Lasix 40 mg bid #60 will last how long?

    a. One week
    b. One month
    c. Three months
    d. None of the above

19. Most pharmacy computer systems check for problems with prescriptions. The system may alert the aide and the pharmacist of all the problems below except:

    a. Drug interactions.
    b. Allergies.
    c. Too many medications prescribed.
    d. Refill frequency.

Match the requirements in Column B with the elements of a prescription in Column A.

	COLUMN A		COLUMN B
____20.	Age	a.	Required
____21.	Weight	b.	Not required
____22.	Patient's name		
____23.	Prescriber's name and address		
____24.	Prescriber's phone number		
____25.	Diagnosis		
____26.	Patient's address		
____27.	Prescriber's signature		
____28.	Name and strength of drug		
____29.	Directions for use		
____30.	Date the prescription was written		
____31.	Quantity to dispense		

Match the requirements in Column B with the elements of a prescription label in Column A.

	COLUMN A		COLUMN B
____32.	Name of the patient	a.	Required by law
____33.	Name of the prescriber	b.	Helpful for the patient
____34.	Date the prescription was filled		
____35.	Pharmacy name and address		
____36.	Number of refills remaining		
____37.	Directions for use		
____38.	"Caution: Federal law prohibits the transfer of this drug to any person other than the patient for whom it was prescribed."		
____39.	"May Cause Drowsiness"		
____40.	"Shake Well"		

Circle the letter that corresponds with the best answer.

41. The pharmacy aide is not allowed to take telephone calls from:

    a. A prescriber who wants to give a verbal prescription.
    b. A customer who wants to know the pharmacy hours.
    c. A patient who is calling to see if their prescription is ready.
    d. A patient calling in a refill.

42. After you have counted the correct number of tablets you should:

    a. Wipe off the counting tray.
    b. Place the cover over the depression of the counting tray.
    c. Pour any remaining tablets back into the bulk pharmacy container.
    d. All of the above

43. Suspensions should:

    a. Always be shaken prior to measuring.
    b. Never be shaken, the drug powder may mix with the liquid.
    c. Always be handled as a hazardous chemical.
    d. Always be prepared by the pharmacist.

44. A(n)_____is used to accurately measure small amounts of oral liquids.

    a. Graduated cylinder
    b. Balance
    c. Ruler
    d. Oral Syringe

45. A pharmacy aide should not_____without supervision.

    a. Interview patients
    b. Handle medications
    c. Repackage medications
    d. Any of the above

Lesson 1: Processing Information for Drug and Prescription Orders

Skill Sheet

PROCESS INFORMATION FOR A NEW PRESCRIPTION

Student Name _____ Date _____

1. Third-party information (if needed)
2. Prescription order
3. Computer
4. Output (labels, patient education, billing)

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Greet patient appropriately.		
2. Obtain patient information, including name, address and birth date.		
3. Obtain third-party information and request documents if needed.		
4. Ask when the patient will return for the completed prescription. Provide an accurate estimate of waiting time if the patient desires to wait.		
5. Choose and verify correct patient profile from computer.		
6. Enter or update data into the patient profile if needed.		
7. Verify the required elements of the prescription order.		
8. Enter the prescription information into the computer, following the prompts provided by the system.		
9. Alert the pharmacist of any problems detected by software interactions, including duplication or compliance checks.		
10. Have the pharmacist check the order input. Correct any problems and obtain a recheck.		
11. Send output (labels, patient education, billing).		
12. Arrange the label and other printed output with the original prescription for the medication.		

The student has satisfactorily completed the procedure "PROCESS INFORMATION FOR A NEW PRESCRIPTION" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

PREPARE SOLID DOSAGE MEDICATIONS FOR DISPENSING INTO BOTTLES

Student Name _____ Date _____

EQUIPMENT:

1. Appropriate medication
2. Prescription order
3. Counting tray/Spatula
4. Blank label
5. Prescription oval
6. Closure
7. Auxiliary labels (if needed)

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain prescription and prepared label and verify the consistency between them.		
2. Select the correct medication from stock by verifying the name, strength, and dosage form.		
3. Wash hands.		
4. Measure the correct quantity. Count tablets or capsules or other solid dosage form.		
5. Place in correct container.		
6. Choose correct closure.		
7. Choose correct auxiliary labels.		
8. Arrange preparation trail for the pharmacist's final check.		

The student has satisfactorily completed the procedure "PREPARE SOLID DOSAGE MEDICATIONS FOR DISPENSING INTO BOTTLES" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

PREPARE LIQUID DOSAGE MEDICATIONS FOR DISPENSING INTO BOTTLES

Student Name _____ Date _____

EQUIPMENT:

1. Appropriate medication
2. Prescription order
3. Graduated cylinder or oral syringe
4. Blank label
5. Prescription oval
6. Closure
7. Auxiliary labels (if needed)

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain prescription and prepared label and verify the consistency between them.		
2. Select the correct medication from stock by verifying the name, strength, and dosage form.		
3. Wash hands.		
4. Check to see if the bulk bottle label indicates that the liquid must be shaken and shake well if necessary.		
5. Turn the bulk bottle so that the label is turned into palm.		
6. Measure volume of liquid in a graduated cylinder.		
7. Clean the side and neck of the container if any liquid has spilled.		
8. Choose correct closure.		
9. Choose correct auxiliary labels.		
10. Arrange preparation trail for the pharmacist's final check.		

The student has satisfactorily completed the procedure "PREPARE LIQUID DOSAGE MEDICATIONS FOR DISPENSING INTO BOTTLES" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

RECONSTITUTE ORAL LIQUIDS

Student Name _____ Date _____

1. Appropriate medication
2. Prescription order
3. Graduated cylinder
4. Prescription oval
5. Distilled water
6. Stirring rod
7. Blank label
8. Auxiliary label

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain prescription and prepared label and verify the consistency between them.		
2. Select the correct medication from stock by verifying the name, strength, and dosage form..		
3. Tap the bulk bottle on the prescription counter to loosen the powder.		
4. Wash hands.		
5. Read the label to find out how much water to add.		
6. Measure the total amount of distilled water with a graduated cylinder or reconstitution tube.		
7. Add half of the water to the container of powdered medication.		
8. Put the cap on tightly and shake well.		
9. Turn bottle upside down to see if any powder is stuck to the bottom of the container.		
10. Loosen any caked powder with a stirring rod.		
11. Add the remaining liquid and shake well.		
12. Apply a "shake well" auxiliary label.		
13. Arrange the prescription for the pharmacist to check.		

The student has satisfactorily completed the procedure "RECONSTITUTE ORAL LIQUIDS" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

PREPARE TOPICAL, OTIC, OPHTHALMIC, RECTAL, AND VAGINAL MEDICATIONS FOR DISPENSING

Student Name _____ Date _____

EQUIPMENT:

1. Appropriate medication
2. Prescription order
3. Blank label
4. Auxiliary labels (if needed)

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain prescription and prepared label and verify the consistency between them.		
2. Select the correct medication from stock by verifying the name, strength, and dosage form.		
3. Wash hands.		
4. Place label on medication package.		
5. Remove and discard package insert.		
6. Remove any pricing stickers.		
7. Apply correct auxiliary labels.		
8. Arrange preparation trail for the pharmacist's final check.		

The student has satisfactorily completed the procedure "PREPARE TOPICAL, OTIC, OPHTHALMIC, RECTAL, AND VAGINAL MEDICATIONS FOR DISPENSING" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

REPACKAGE SOLID DOSAGE FORMS FOR DISPENSING INTO BUBBLE PACKS

Student Name _____ Date _____

EQUIPMENT:

1. Appropriate medication
2. Physician order
3. Blank labels
4. Repackaging log
5. Bubble pack
6. Counting tray/Spatula

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain physician order and prepared labels.		
2. Verify consistency between the physician order and the label.		
3. Enter appropriate information into the repackaging log.		
4. Select correct medications from stock, verifying name, strength, and dosage form.		
5. Open bubble packs and place them on the repackaging counter.		
6. Wash hands.		
7. Count the correct number of tablets or capsules.		
8. Obtain midpoint check by the pharmacist.		
9. Place doses in the bubble package.		
10. Seal the bubble pack.		
11. Apply the labels.		
12. Arrange preparation trail for the pharmacist's final check.		

The student has satisfactorily completed the procedure "REPACKAGE SOLID DOSAGE FORMS FOR DISPENSING INTO BUBBLE PACKS" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 2: Preparing Medications

Skill Sheet

REPACKAGE LIQUID DOSAGE FORMS FOR DISPENSING INTO CUPS

Student Name _____ Date _____

EQUIPMENT:

1. Appropriate medication
2. Physician order
3. Blank labels
4. Repackaging log
5. Graduated cylinder
6. Metal or glass cup
7. Metal cap/foil seal

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Obtain physician order and prepared labels.		
2. Verify consistency between the physician order and the label.		
3. Enter appropriate information into the repackaging log.		
4. Select correct medications from stock, verifying name, strength, and dosage form.		
5. Wash hands.		
6. Check to see if the label indicates that the liquid must be shaken and shake well if necessary.		
7. Measure the correct amount of liquid with a graduated cylinder.		
8. Pour into metal or glass cup.		
9. Seal the cap with a metal cap or foil seal.		
10. Apply labels.		
11. Arrange preparation trail for the pharmacist's final check.		

The student has satisfactorily completed the procedure "REPACKAGE LIQUID DOSAGE FORMS FOR DISPENSING INTO CUPS" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Written Unit Evaluation

Student Name _____ Date _____

Circle the letter that best corresponds to the best answer.

1. A pharmacy should always have:

   a. Too much stock on hand.
   b. Too little stock on hand.
   c. Enough stock to fill about two prescriptions for a particular medication.
   d. Extra stock hidden away in different places, just in case.

2. _____ is responsible for maintaining pharmacy inventory.

   a. The entire pharmacy staff
   b. The pharmacy aide
   c. The clerk
   d. The pharmacy manager

3. Pharmacies should borrow medications from other pharmacies:

   a. On a daily basis.
   b. Only when absolutely necessary -- to not take advantage.
   c. Never.
   d. Three times a day.

4. It takes_____to get Schedule II drugs from the wholesaler than it takes to get ordinary prescription drugs and over-the-counter items.

   a. Less time
   b. More time
   c. Same amount of time
   d. Too much time

5. Expired drugs:

   a. Should be returned to the manufacturer.
   b. Can be used if approved by the prescriber.
   c. Can be used if approved by the pharmacist.
   d. Can be used if approved by the pharmacy aide.

6. A lot number is:

   a. The address of the manufacturer.
   b. The number of tablets in the prescription bottle.
   c. The number used to locate recalled drugs.
   d. The telephone number of the prescriber.

7. A_____is a map of the pharmacy display used to display the most popular or profitable products.

   a. Drug map
   b Medication Map
   c. Plan a map
   d. Plan a gram

8. A price sticker should not be placed right on the front of a product because:

   a. The customer should not know how much the product costs.
   b. The customer may not be able to read the label.
   c. The pharmacy staff should not know how much a product costs.
   d. All of the above

9. A label indicates that the expiration date for the medication is 11/98. The medication should not be used after:

   a. November 1, 1998.
   b. November 30, 1998.
   c. December 1, 1998.
   d. December 15, 1998.

10. If you are taking a stock bottle of medication off the shelf to fill a prescription for 30 tablets, and the bottle only contains about 20 tablets when you replace it, you should probably:

   a. Put the product on the want book for day after tomorrow's order.
   b. Borrow some immediately from another pharmacy.
   c. Give the patient only half of the prescription and ask him to come back for the rest.
   d. None of the above

11. A pharmacy would note signs of damage to a shipment on the manifest. These signs may include:

    a. Water spots.
    b. The sound of broken glass.
    c. Mildew on the outside of the box.
    d. All of the above

12. The _____ can be used to check in an order:

    a. Manifest
    b. Receiver's copy of the purchase order
    c. Prescription log
    d. B and C

13. Returns to the manufacturer or wholesaler are possible if:

    a. The drug has expired.
    b. The drug is recalled.
    c. The pharmacy ordered a medication for a patient who did not tolerate it, and stopped using it.
    d. A and B only

14. The pharmacy aide's role in marketing includes:

    a. Stocking shelves.
    b. Setting up displays.
    c. Placing price stickers on items.
    d. All of the above

Match the seasonal displays in Column B with the products in Column A.

	COLUMN A		COLUMN B
____15.	Chapstick®	a.	Summer
____16.	Sunscreen	b.	Winter
____17.	Aloe Vera Gel		
____18.	Cough and cold preparations		
____19.	Pamphlets on pneumonia and influenza vaccine		
____20.	Ultra Slim-Fast®		
____21.	Insect Repellant		
____22.	Cough Lozenges		
____23.	Pamphlets on detecting skin cancer		

Lesson 1: Maintaining Pharmacy Stock

Skill Sheet

RECEIVE A SHIPMENT OF MEDICATION

Student Name _____ Date _____

EQUIPMENT:

1. Shipment
2. Manifest
3. Receiving copy of the purchase order

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Count the boxes in the shipment. Verify addresses as belonging to the pharmacy.		
2. Check the boxes for signs of damage.		
3. Sign the manifest if the number and the condition of the boxes are acceptable. Note any problems on the manifest.		
4. Find receiving copy of the purchase order.		
5. Check order against the receiving copy. Check for name of the product, brand, number, strength, size, and quantity. Mark the receiving copy as products are located in the shipment.		

The student has satisfactorily completed the procedure "RECEIVE A SHIPMENT OF MEDICATION" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 1: Maintaining Pharmacy Stock

Skill Sheet

STORE PRESCRIPTION MEDICATIONS

Student Name _____ Date _____

EQUIPMENT:

1. Prescription medication
2. Stock

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Read labels for special storing instructions		
2. Put away any refrigerated products immediately.		
3. Rotate stock so that medications with a later expiration date are stored behind medications with an earlier expiration date.		
4. Check to make sure that the medication is protected from extreme temperatures (if it is not refrigerated) and humidity.		

The student has satisfactorily completed the procedure "STORE PRESCRIPTION MEDICATIONS" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Lesson 1: Maintaining Pharmacy Stock

Skill Sheet

STORE OVER-THE-COUNTER MEDICATIONS

Student Name _____ Date _____

EQUIPMENT:

1. Medication
2. Stock
3. Price stickers

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Read labels for special storing instructions.		
2. Put away refrigerated products immediately.		
3. Rotate stock so that medications with a later expiration date are stored behind medications with an earlier expiration date.		
4. If necessary, apply price sticker to medication in a place where it will not cover any important label information.		
5. Check for inconsistencies in price and report any inconsistencies to the pharmacist or manager.		
6. Check to make sure that the medication is protected from extreme temperatures (if not refrigerated) and humidity.		
7. Check to make sure shelf labels and products are lined up correctly.		

The student has satisfactorily completed the procedure "STORE OVER-THE-COUNTER MEDICATIONS" according to the steps outlined.

_____ _____

Instructor's/Approved Clinical Supervisor's Signature (Verifying Satisfactory Completion) Date

Written Unit Evaluation

Student Name _____ Date _____

Match the terms in Column B with the definitions in Column A.

	COLUMN A		COLUMN B
____1.	Issued by banks or other lender to responsible customers	a.	Cash transaction
		b.	Credit card transaction
____2.	Less common for individuals now, still often used for physician's offices	c.	In-store credit transaction
		d.	Third-party transaction
____3.	Cash, check		
____4.	Someone other than the patient pays for prescription or service		

Match the terms in Column B with the definitions in Column A.

	COLUMN A		COLUMN B
____5.	Patient pays a fixed amount regardless of the cost of the prescription.	a.	Coinsurance
		b.	Deductible
____6.	Patient pays all of the prescription cost up to a set amount annually, then the insurance plan begins to pay.	c.	Co-payment
____7.	Patient pays a percentage of the prescription cost.		

Circle the letter that corresponds to the best answer.

8. Prescription sales and sales of over-the-counter items are rung up on separate keys on the cash register because:

   a. The prescriptions are non taxable.
   b. The pharmacy needs to know how much of a day's sales were prescription business vs. over-the-counter sales.
   c. The DEA requires that separate keys be used.
   d. A and B.

9. A customer buys a prescription for amoxicillin for her child ($12.55), a package of diapers ($8.99), and a pacifier ($2.19). Her family is covered by a prescription plan which requires a $5 co-pay once the $100 deductible has been met for the year. Sales tax in your city is 6.25%. How much should be collected?

   a. $24.89
   b. $24.12
   c. $16.88
   d. $16.18

10. How much change should be given if a transaction total is $24.23 and the customer gives you $30.03?

    a. A nickel, three quarters, a five, and a one
    b. A nickel,a five, and a one
    c. A nickel, three quarters, and a five
    d. None of the above

11. Prescription drugs that are returned by the customer:

    a. Should never be resold.
    b. Should always be resold.
    c. Can be resold if it was returned in the original container.
    d. Can be resold if it looks as if none of the product was used.

12. A patient should be asked about third-party payment:

    a. When picking up his/her prescription.
    b. When he/she first presents the prescription order.
    c. When he/she first walks into the pharmacy.
    d. After he/she receives the prescription and pays for it.

13. A_____ is a fixed amount paid by HMOs for each patient in the plan.

    a. Capitation fee
    b. Deductible
    c. Pharmacy fee
    d. Prescriber fee

14. All legal records in the pharmacy are usually kept:

    a. In a central location.
    b. Near the narcotics cabinet.
    c. Near the cash register.
    d. In different locations throughout the pharmacy.

15. Most pharmacies file:

    a. Alphabetically, the end of the alphabet on top or toward the front of the documents.
    b. Alphabetically, the beginning of the alphabet on top or toward the front of the documents.
    c. Chronologically, the more recent documents on top or toward the front of the documents.
    d. Chronologically, the less recent documents on top or toward the front of the documents.

16. If you need to take a day off, the best way to notify your supervisor would be to:

    a. Ask him/her as soon as possible.
    b. Ask him/her close to the date when you need to take off.
    c. Write a memo as soon as possible.
    d. All of the above would be appropriate.

17. If you mention another person by name in your memo you should:

    a. Give him/her a copy of the memo.
    b. Tell him/her that they are in your memo.
    c. Send a copy only to the supervisor of the person you mention.
    d. All of the above would be appropriate.

18. _____is the best salutation to use in a business letter if you know the addressee's name is Bill Smith.

a. To whom it may concern
b. Dear Sir
c. Dear Bill
d. Dear Mr. Smith

Pharmacy Aide Competency Record

Name and Address: _____

Directions: Evaluate the student by checking the appropriate number or letter to indicate the degree of competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:
3 Mastered - can work independently with no supervision
2 Requires Supervision - can perform job completely with limited supervision
1 Not Mastered - requires instruction and close supervision
N No Exposure - no experience or knowledge in this area

(IBM) 12-95

NOTE: The code in parentheses is the competency identification number used in computerized management systems.

☐ Successfully completed the Health Care Assistant Core Competencies

3	2	1	N

A. Introduction to Pharmacy

1. Identify the roles and responsibilities of team members. (A001)
2. Identify educational requirements of pharmacy team members. (A002)
3. Identify opportunities for employment in the pharmacy industry. (A003)
4. Follow a chain of command. (A004)
5. Maintain patient confidentiality. (A005)
6. Practice professional work habits. (A006)
7. Follow state regulations governing pharmacies. (A007)
8. Locate OSHA poster and MSDS in the clinical site. (A008)
9. Identify regulations of the DEA. (A009)
10. Identify regulations of the FDA. (A010)
11. Identify OSHA regulations. (A011)

Other _____

_____

3	2	1	N

B. Communication Skills

1. Use verbal and nonverbal communication. (B001)
2. Utilize communication techniques in handling difficult situations. (B002)
3. Use proper etiquette in answering the telephone. (B003)
4. Place business calls. (B004)
5. Greet customer properly. (B005)
6. Assist customer in locating needs within the pharmacy. (B006)
7. Participate as a team member. (B007)
8. Gather information needed at initial patient contact. (B008)
9. Communicate effectively with co-workers. (B009)

Other _____

_____

3	2	1	N

C. Pharmaceuticals

1. Locate drugs in the pharmacy stock. (C001)
2. Identify drug classifications. (C002)
3. Differentiate between over-the-counter medications and prescription drugs. (C003)
4. Differentiate between brand name and generic drugs. (C004)
5. Differentiate between routes of administration. (C005)
6. Differentiate between dosage forms. (C006)
7. Identify terms related to patient response to drugs. (C007)
8. Use reference books in the pharmacy. (C008)
9. Use abbreviations appropriately. (C009)
10. Convert measurement systems. (C010)
11. Use measuring devices. (C011)

Other _____

_____

3	2	1	N

D. Prescription Processing

1. Process information for new prescriptions. (D001)
2. Identify components of a complete prescription. (D002)
3. Select physician orders pertinent to the pharmacy. (D003)
4. Identify the "rights" for processing a prescription order or physician order. (D004)
5. Differentiate between medication packaging systems. (D005)
6. Generate prescription labels. (D006)
7. Calculate anticipated drug usage for a prescribed period. (D007)
8. Prepare liquid dosage medications for dispensing into bottles. (D008)
9. Prepare topical, otic, ophthalmic, rectal, and vaginal medications for dispensing. (D009)
10. Prepare solid dosage medications for dispensing into bottles. (D010)
11. Prepare solid dosage medications for dispensing into unit dose packaging. (D0011)
12. Prepare liquid dosage medications for dispensing into unit dose packaging. (D0012)

Other _____

_____

BEST COPY AVAILABLE

3	2	1	N

E. Maintaining the Pharmacy

1. Straighten and clean shelves. (E001)
2. Identify proper disposal of expired drugs. (E002)
3. Set up displays - retail. (E003)
4. Store drugs properly. (E004)
5. Maintain pharmacy stock. (E005)
6. Receive an order of medication. (E006)
7. Inventory and restock floor medications (E007)

Other _____

_____

3	2	1	N

F. Business Operations

1. Operate a cash register. (F001)
2. Process a third-party payer claim. (F002)
3. Calculate co-payment amount for a prescription. (F003)
4. Calculate co-insurance amount for a prescription. (F004)
5. Process cash sales. (F005)
6. Process credit sales. (F006)
7. Process in-store credit sales. (F007)
8. File chronologically. (F008)
9. Compose business letters and memos. (F009)

Other _____

_____

Produced by the Instructional Materials Laboratory • University of Missouri-Columbia • 2316 Industrial Drive • Columbia, MO 65202 • 800-669-2465

Certificate of Achievement

This is to certify that

_____

Achieved the Competencies
as Acknowledged for
Pharmacy Aide
And is Therefore Recognized

This _____ Day of _____, 19 ____

_____ _____

Instructor Administrator

50-1144-K

Pharmacy Aide

Instructor Key

201

Instructional Materials Lab • University of Missouri/Columbia
Missouri Department of Elementary and Secondary Education

Available from:
Instructional Materials Laboratory
University of Missouri-Columbia
2316 Industrial Drive
Columbia, MO 65202
800-669-2465 or 573-882-2883

"Development of this project was supported in whole or in part by funds from the Department of Elementary and Secondary Education, Division of Vocational and Adult Education. However, information or opinions expressed herein do not necessarily reflect the position or policies of the Missouri Department of Elementary and Secondary Education or the Division of Vocational and Adult Education, and no official endorsement should be inferred."

Pharmacy Aide

Instructor Key

Kelly Burch, Pharm.D.
Assistant Professor
St. Louis College of Pharmacy
St. Louis, MO

Veronica Feilner, Editor and Project Coordinator
Jeannine Robling, Assistant Editor
Instructional Materials Laboratory
University of Missouri-Columbia

Produced by the
Instructional Materials Laboratory
University of Missouri-Columbia
Columbia, Missouri

January, 1996

Catalog Number 50-1144-K

Table of Contents

Instructional Strategies v

Answers to Activity Sheets and Written Evaluations

Unit I: Introduction to Pharmacy 1

Unit II: Communication Skills 5

Unit III: Pharmaceuticals 9

Unit IV: Prescription Processing 12

Unit V: Maintaining the Pharmacy 16

Unit VI: Business Operations 18

Instructional Strategies

This *Pharmacy Aide* Instructor's Key is designed to be used with the *Pharmacy Aide* Student Manual. It provides answers to the activity sheets and unit evaluations. The content was developed with input from secondary health occupations education instructors, post-secondary school of pharmacy instructors, pharmacists, pharmacy technicians, and personnel from the Missouri Department of Elementary and Secondary Education and the Instructional Materials Laboratory at the University of Missouri-Columbia.

The self-instructional format provides health occupations education instructors the opportunity to address the needs of students whose health career interest is outside of the nursing field. Following completion of the Health Care Assistant Core Competencies, a student interested in pursing a career in the pharmacy field can achieve pharmacy specific competencies through this curriculum. Successful completion prepares the student for an entry-level position as a pharmacy aide as well as a solid knowledge and skill base to continue education in a pharmacy career.

The *Pharmacy Aide* curriculum is primarily designed to be used independently by students who are in secondary health occupations programs or by individuals receiving on-the-job training in the pharmacy. Instructors should set up parameters for the individualized instruction, oversee the knowledge component of instruction (Including the Written Unit Evaluations), and identify a clinical site and a clinical supervisor. The clinical supervisor should be responsible for supervising the student while at the clinical site, providing skill training, and evaluating mastery of skills.

Since mastery of the information and skills will be evaluated using the Written Unit Evaluations (pink) and the Skill Sheets (pink), it is recommended that these pages be removed before the manual is given to the student. These pages are located together at the end of the manual.

A Pharmacy Aide Competency Record Sheet and a Pharmacy Aide Certificate of Achievement have also been included at the end of the student manual. These could be removed and filed with the evaluation instruments.

The student manual is divided into six units: Introduction to Pharmacy, Communication Skills, Pharmaceuticals, Prescription Processing, Maintaining the Pharmacy, and Business Operations. Units are further divided into lessons, which contain lesson objectives, key terms, content information, illustrations, and activity sheets as appropriate for the content. Activity Sheets are designed to assist the learner in mastering the information in each lesson. They also contain clinical/laboratory activities. Instructors should review or discuss these activities with students. The Activity Sheets may or may not be graded depending on individual student needs and instructor's preference.

Each unit has a written evaluation, which should be administered after all lessons in the unit are studied. A score of 80 percent is needed for mastery of the information in the unit. Skill Sheets provide a record for the mastery of the steps in the procedure for each skill. . The student should practice the skills outlines in the lessons before requesting evaluation of the skills. When evaluating mastery of the skills, the clinical supervisor can determine that mastery is obtained when he/she feels confident in the student's ability to perform the skill without direct supervision.

A Unit Checklist, located at the end of each unit, provides a method for keeping track of Activity Sheets, Skill Sheets, and Written Unit Evaluations to be completed in the unit.

In addition to being utilized in the secondary health occupations program to prepare pharmacy aides, the *Pharmacy Aide* curriculum could be used in other ways as well:

*Health occupations education instructors may choose some units of instruction as an adjunct to teaching career opportunities in pharmacy.

*Pharmacies may use all or part of the curriculum in training students or new staff members.

Answers to Activity Sheets and Written Evaluations

NOTE: Answers are not provided for Clinical/Laboratory Activities. Review or discuss these activities with students.

Unit I: Introduction to Pharmacy

Lesson 1: The Pharmacy Industry - Activity Sheet

1. A drug is an active chemical ingredient contained in a medication. Medication refers to the drug (or chemical) *and* the dosage form.

2. *Patient* is used when discussing health-related or prescription-related needs of people who visit the pharmacy. *Customer* is used when discussing consumer, marketing or business issues.

3. a. Retail pharmacy
   b. Hospital pharmacy
   c. Home-care pharmacy

4. Pharmacists provide medications and information to help patients feel healthy. Pharmacists control access to certain medications, store medications safely, and run the business aspects of the pharmacy while complying with state and federal laws that regulate drug dispensing. A pharmacist must complete at least five years of college, gain experience in the pharmacy and pass a test set by the Board of Pharmacy.

   A pharmacy technician is a support person for the pharmacist. Responsibilities vary depending on the pharmacy. Pharmacy technicians may be trained on the job, through a college community program or while serving in the military. A pharmacy technician must take courses in computer applications, calculations, pharmacology, and business.

   A pharmacy aide is a support person for the pharmacist. Duties depend on the practice but they can be related to patient care or business related. Patient care activities are usually more supervised than business related activities. Pharmacy aides are typically trained on the job.

   A clerk usually does not perform any prescription-related functions in the pharmacy. A clerk may ring up sales, restock shelves, answer the phone, and assist with some business functions. A clerk is trained on the job.

5. The pharmacy aide always reports directly to the pharmacist.

6. *Pharmacology* is the science that deals with the origin, nature, chemistry, effects, and uses of drugs.

   Pharmaceutics is the science dealing with the composition and preparation of chemical compounds used in medical diagnoses and therapies.

   Pharmacokinetics is the study of movement of drugs in the body, including the processes of absorption, distribution, localization in tissues, biotransformation and excretion.

7. a. Pharmacist
   b. Director of Pharmacy

Lesson 2: Ethics - Activity Sheet

1. It is important to maintain patient confidentiality so that patients can trust their pharmacist and staff.

2. Answer should include at least two of the following:
   a. Bring harm to a patient.
   b. Exploit, belittle or embarrass a patient.
   c. Disrespect a patient.

3. Answers may vary, but should include at least two ways an aide could breach patient confidentiality.

4. Answers may vary, but should include at least four characteristics of a professional pharmacy aide.

5. Answers may vary, but should include at least two positive and two negative ways a pharmacy aide's work ethic could have a positive impact on the pharmacy's business.

Lesson 3: Missouri Pharmacy Law - Activity Sheet

1. e
2. c
3. b
4. a
5. d

6. The Missouri Board of Pharmacy examines and licenses applicants, issues licenses for pharmacists, pharmacies, drug distributors and intern pharmacists, disciplines the licenses of any pharmacist, pharmacy, drug distributor, or intern pharmacist found to be in violation of Missouri law, inspects pharmacies and drug distributors within the state, inspects and certifies pharmacies for intern training pharmacies.

7. The "Red Book" is published annually.

8. The pharmacist is ultimately responsible for the tasks performed by a pharmacy aide.

9. The components of the Missouri Pharmacy Act that regulate drug dispensing are: labeling of prescriptions and containers, filling of prescription orders, regulating the storage of drugs, ensuring that drugs are secure and stable while storing them in the pharmacy.

Lesson 4: Federal Regulatory Agencies and Acts Affecting Pharmacy Practice - Activity Sheet

1. Safe and effective
2. d
3. b
4. a
5. c
6. The Poison Prevention Packaging Act requires that household substances be packaged for consumers in child-resistant packaging.

7. a. Certain procedures must be followed to minimize the risk of falls or back injury.
   b. Certain procedures must be followed to minimize problems with repetitive stress injury from improper use of electronic equipment.
   c. Protect all employees equally from hazardous chemicals.

8. Answer should include at least three of the following:
   a. Schedule I - heroin, marijuana, or LSD
   b. Schedule II - amphetamines, cocaine, codeine, hydromorphone, meperidine, methadone, morphine, or opium
   c. Schedule III - paregoric or acetaminophen with codeine
   d. Schedule IV - chloral hydrate, phenobarbital, or benodiazepines
   e. Schedule V - Lomotil® (diphenoxylate and atropine) or cough medications with codeine

9. Answer should include at least three of the following:
   a. List hazardous chemicals within the workplace.
   b. Minimize hazards of performing nonroutine tasks.
   c. Protect all employees equally from hazardous chemicals.
   d. Describe labeling methods.
   e. Collect and maintain Material Safety Data Sheets (MSDS)
   f. Train employees regarding hazardous chemicals.
   g. Describe how employees are protected from chemicals whose ingredients are trade secrets.

10. An employee may determine whether a product has a hazardous chemical by reading the label, referencing the Material Safety Data Sheet (MSDS) or calling the MSDS 24-hour telephone numbers.

Unit I - Introduction to Pharmacy - Written Evaluation

1.	a	15.	e
2.	d	16.	c
3.	d	17.	b
4.	c	18.	b
5.	d	19.	a
6.	b	20.	c
7.	d	21.	a
8.	b	22.	b
9.	e	23.	c
10.	a	24.	a
11.	d	25.	b
12.	c	26.	c
13.	a	27.	d
14.	d	28.	a

Unit II: Communication Skills

Lesson 1: Direct Customer Assistance - Activity Sheet

1. Answers may vary, but should list at least two appropriate greetings.

2. Answers may vary, but should include one positive nonverbal message and one negative nonverbal message.

3. a. A pharmacy could assist the customer by directing the customer to the over-the-counter cold medications.
   b. A pharmacy should refer the customer to pharmacist when the customer needs help in choosing a medication.

4. The answer should include at least three of the following:
   a. Listen to the customer's entire story, without interrupting.
   b. Echo the customer's points, showing that you heard the major issues and problems.
   c. Use a calm tone of voice and releaxed body language.
   d. Do not make excuses.
   e. Do not argue.
   f. Do not minimize the problem.
   g. Try to assure the customer that you will find the problem's cause and prevent it from happening again.
   h. Resove the problem as positively as possible.

5. The pharmacy aide can ensure that patients have access to information about medications by:
   a. Stocking the pharmacy area with pamphlets.
   b. Offering the advice of the pharmacist.

6. a. Introduce himself/herself.
   b. Assure the patient that the interview is almost over.
   c. Close the interview in a way that makes the patient feel as if his/her time has been well-spent.

7. Answers may vary, but should include at least two appropriate closings of a patient interview.

Lesson 2: Telephone Customer Assistance - Activity Sheet

1. The following information should be filled in:

a.

TO: *Pharmacist Jones*

DATE: *Today* TIME: *3:15 p.m.*

BY: *Aide's name*

☒ Please return call ☒ Telephoned

☐ Will call again ☐ Returned your call

Name of caller: *Dr. Jo Jackson*

of:

Phone: *(430) 555-1212*

Message: *Calling to ask you to attend a meeting at the nursing home to review the home's policy about medications. The meeting is at 7:00 p.m. on 4/2. RSVP by 3/25.*

212

b.

TO: *Pharmacist Brown*

DATE: *Today* TIME: *11:30 a.m.*

BY: *Aide's name*

☐ Please return call ☒ Telephoned

☐ Will call again ☐ Returned your call

Name of caller: *Joe MacKinnon*

of: *Galaxio Pharmaceutical Co.*

Phone: *Car: 730-6000 Beeper: 730-6001*

Message: *If he does not receive a call from you by 5:00 p.m. today, Mr. MacKinnon will plan on stopping by for a 15 min. appt. to discuss a new drug.*

2. Answers may vary, but should include two appropriate greetings for answering the pharmacy phone.

3. The answer should include at least two of the following:
   a. Calls from prescribers
   b. Calls for medication information, or emergency calls
   c. Calls from other pharmacies to transfer or confirm prescriptions
   d. Calls about prescription errors

4. It is important to use the hold button when putting someone on hold instead of placing the handset on the counter because customers may overhear conversations in the pharmacy and you could breach patient confidentiality.

5. You should allow the phone to ring ten times when placing a business call to allow enough time for people with physical disabilities to answer the telephone.

Lesson 3: Interacting with Coworkers - Activity Sheet

1. Answer should include at least two of the following:

   a. Help to clean a spill in the pharmacy.
   b. Answer the telephone, even though it may be a coworker's responsibility.
   c. Help a customer when a coworker is busy.
   d. Acknowledge talents of coworkers.

2. *Communication* is used to get the job done. Communication includes the essential messages that need to be sent and received among coworkers in order to achieve the goals of the pharmacy. *Chat* is usually the personal communication among coworkers. Chat can be detrimental in achieving the pharmacy goals. Breaks and lunch are the most appropriate times for chat.

3. a. Avoidance - staying away from the source of the conflict
   b. Mediation - the use of a third-party is used to offer possible solutions
   c. Mutual problem solving - both sides work together to resolve the conflict and come up with solutions that are mutually acceptable.

Unit II - Communication Skills - Written Evaluation

1.	c	10.	b
2.	b	11.	c
3.	a	12.	a
4.	c	13.	d
5.	d	14.	b
6.	a	15.	b
7.	d	16.	a
8.	c	17.	c
9.	c		

Unit III - Pharmaceuticals

Lesson 1: Pharmacology - Activity Sheet

1. Pharmacology is defined as the study of the of the composition , uses and effects of drugs.

2. a. The patient's condition
   b. Allergies of the patient
   c. The patient's age and ability to tolerate certain dosage forms

3. c.
   a.
   d.
   e.
   b.

4. Answer should include at least three of the following:
   a. Febrile - having an elevated temperature
   b. Hypertensive - having an elevated blood pressure
   c. Hypotensive - having a low blood pressure
   d. Tachycardic - having an elevated heart rate
   e. Bradycardic - having a slow heart rate
   f. Tachypneic - having a rapid breathing rate
   g. Analgesia - showing signs of decreased pain
   h. Ataxic - having difficulty walking, or sitting due to dizziness

5. Answer should include at least two of the following:
   a. *The Red Book*
   b. *The American Drug Index*
   c. *Facts and Comparisons*
   d. *Taber's Medical Dictionary*
   e. *Dorland's Medical Dictionary*

f. *Physician's Desk Reference*
g. Wholesaler catalog

Lesson 2: Organization of Drugs in the Pharmacy - Activity Sheet

1. a. Over-the counter drugs may be stored on open shelves; prescription drugs are stored behind the pharmacy counter.
   b. Over-the-counter drugs do not have a legend; prescription drugs have a legend.
   c. Over-the-counter drugs may be sold without a prescription; prescription drugs are sold with a prescription.

2. Answers may vary, but should include one example of a generic OTC medication and two examples of brand names of that same medication.

3. Answer should include at least four of the following:
   a. Oral
   b. Sublingual
   c. Inhalation
   d. Intravenous
   e. Subcutaneous
   f. Intramuscular
   g. Intradermal
   h. Rectal
   g. Vaginal
   h. Topical
   i. Nasal
   j. Ophthalmic
   k. Otic

4. Answer should include at least four of the following:
   a. Tablets
   b. Capsules
   c. Lozenges
   d. Suppositories
   e. Suspensions
   f. Solutions
   g. Elixirs
   h. Syrups

5. Over-the-counter medications are stored on shelves within each reach of the customers in the pharmacy. OTC medications are usually arranged by the symptom or problem they are intended to treat. Prescription medications are always stored in the area of the pharmacy where access is limited. Drugs are usually stored in u-shaped shelving units called medication bays. Drugs can be stored in compartments called cassettes.

6. a. Close entrance and exit doors to the pharmacy department.
   b. Do not enter the prescription area unless you are scheduled to work.

Lesson 3: Measurement Systems - Activity Sheet

1. b.
   c.
   a.
2. c.
   d.
   a.
   b.

3. a. A balance is used to accurately weigh very small quantities of a solid substance.

   b. Volume is most accurately measured using a graduated cylinder.

   c. An oral syringe is used to measure small amounts of liquid medications for infants and children.

4. A five-foot two-inch patient is approximately 158 centimeters tall.

5. A 75-kilogram patient weighs 165 pounds.

6. A baby weighing 9 pounds, two ounces weighs 4146 grams.

7. An ounce of concentrated liquid is supposed to be diluted with water to make one pint of the final product. 30 ml of the product will be needed to make the final product. 450 milliliters of water will be needed.

8. 250 milliliters = 8.3 fluid ounces.

9. 12 centimeters by 16 centimeters = 4.7 inches by 6.3 inches

10. A chemical that costs $3.50 a pound would be approximately 23 cents for 30 grams

11. A baby that weighs 900 grams weighs 1 pound and 14.9 ounces.

Unit III - Pharmaceuticals - Written Evaluation

1.	c	19.	h
2.	d	20.	i
3.	a	21.	j
4.	b	22.	a
5.	b	23.	c
6.	a	24.	b
7.	a	25.	f
8.	b	26.	e
9.	a	27.	d
10.	b	28.	g
11.	c	29.	d
12.	c	30.	c
13.	d	31.	b
14.	b	32.	d
15.	d	33.	a
16.	e		
17.	a		
18.	c		

Unit IV - Prescription Processing

Lesson 1: Processing Information for Prescription Orders and Physician Orders - Activity Sheet

1. A **prescription order** is an order for medication issued by a licensed prescriber such as a physician or dentist. Prescription orders are most common in retail pharmacies. A **physician order** contains all new medication orders and physician requests for a patient on the same sheet. Physician orders are most common in hospitals and long-term care facilities.

2. a. Right drug
   b. Right dose
   c. Right patient
   d. Right time

3. Answer should include at least four of the following:

   a. In-window
   b. Out-window
   c. Data entry area
   d. Preparation area
   e. Pick up area
   f. Administration area

4. a. Demographic information
   b. Insurance information
   c. Clinical information

5. Confirmation bias can occur when people see what they expect to see.

6. The pharmacist must verify a prescription entered by a support person before any medication is dispensed.

7. a. Prescriber's name, address, and DEA or BNDD numbers

   b. Patient identification information
      1. Patient's name
      2. Patient's address

   c. Date the prescription was written

   d. Precise identification of drug product
      1. The medication that is being prescribed is ordered by brand name or generic name.
      2. The strength of the medication is specified.
      3. The dose is specified.

   e. Quantity is specified.

   f. The directions for use are specified.

   g. Number of refills

   h. If generic substitution is allowed.

   i. The prescriber signature

8. Prescription labels are required to list: the date the prescription was filled, pharmacy name and address, prescription number, name of the patient, name of the prescriber, and directions for use. Controlled substances must be labeled with the statement, "Caution: Federal prohibits the transfer of this drug to any person other than the patient to whom it was prescribed."

9. 5 ounces

10. 24 days

11. 2 ounces
    15 days

12. a. Take one tablet orally four times daily before meals and at bedtime.
    b. Take one capsule at bedtime as needed for sleep.
    c. Apply small amount to rash three times daily.
    d. Take drop in both eyes twice daily.
    e. Take teaspoon orally every eight hours.
    f. Take capsule after each meal and at bedtime.
    g. Take capsule every eight hours as needed for itch.
    h. 2.5 mililiters orally every eight hours x 10d for ears.

Lesson 2: Preparing Medications - Activity Sheet

1. Answers may vary, but should include the easiest liquid to measure, any inaccurate measurements and the most accurate measuring device.

2. A preparation trail is an arrangement of materials for the pharmacist to check after a support staff member has prepared a medication. A preparation trail allows the pharmacist to check the accuracy of the filled prescription and the labels.

3. Bubble packs are used in nursing homes so that medications can be safely administered in unit dose form.

4. Suspensions

Unit IV - Prescription Processing - Written Unit Evaluation

1.	a	23.	a
2.	b	24.	a
3.	d	25.	b
4.	c	26.	b
5.	c	27.	a
6.	d	28.	a
7.	a	29.	a
8.	e	30.	a
9.	b	31.	a
10.	g	32.	a
11.	a	33.	a
12.	f	34.	a
13.	e	35.	a
14.	b	36.	b
15.	d	37.	a
16.	c	38.	a
17.	c	39.	b
18.	b	40.	b
19.	c	41.	a
20.	b	42.	d
21.	b	43.	a
22.	a	44.	d
		45.	d

Unit V: Maintaining the Pharmacy

Lesson 1: Maintaining Pharmacy Stock - Activity Sheet

1. Too much inventory is not a good business practice. The pharmacy must pay the wholesaler or manufacturer shortly after the product is received, but the pharmacy will not receive payment until the products are sold to the customers. Too little inventory means that every prescription filled causes the pharmacist to scramble to special order a medication, borrow from another pharmacy, or even refer a patient to another pharmacy.

2. The min/max system of inventory relies on a predetermined order point and an order quantity.

3. a. Count the boxes in the shipment. Verify addresses.
   b. Check the boxes for signs of damage.
   c. Sign the manifest if the number and the condition of the boxes are acceptable. Note any problems on the manifest.
   d. Find the receiving copy of the purchase order.
   e. Check each product against the receiving copy. Check for product, brand, number, strength, size, and quantity. Mark the receiving copy as you locate each product in the shipment.

4. 7/31/98

5. Rotating stock means to place the product that expires the earlier in front of the product that expires later. The medication with the earliest expiration date is sold first.

6. a. Extreme temperatures
   b. Humidity

7. When handling a drug recall, the aide should check the product to see if any of that lot number is in stock. If none of the recalled product is in stock, it should be noted on the recall notice and the notice should be filed. If the recalled drug is detected, it should be pulled from stock, and the pharmacist will complete the paperwork needed to return it to the manufacturer. In some cases, patient records may be needed to be searched, so that patients may be contacted about the recall.

8. A return goods authorization form requires the name, strength, dosage form, number of packages of each product, and their costs.

Lesson 2: Marketing - Activity Sheet

1. It is important to maintain a positive environment in the pharmacy because patients must feel confident that they are getting a sanitary product and the most up-to-date treatment available.

2. "Front and Face" is a display technique that means to bring the remaining product to the front of the shelf and face products the same way on the shelf.

3. Answer may vary, but should include at least three OTC winter products and three OTC summer products.

4. Answer may vary, but should include at least three positive and three negative things about the OTC area in pharmacies that the student has visited.

Unit V: Maintaining the Pharmacy - Written Evaluation

1.	c	13.	d
2.	a	14.	d
3.	b	15.	b
4.	b	16.	a
5.	a	17.	a
6.	c	18.	b
7.	d	19.	b
8.	b	20.	a
9.	b	21.	a
10.	a	22.	b
11.	d	23.	a
12.	b		

Unit VI - Business Operations

Lesson 1: Process Sales Transactions - Activity Sheet

1. a. Cash transactions
   b. Credit transactions
   c. In-store credit transactions
   d. Third-party transactions

2. Cash transactions include sales made with *cash* and *checks*.

3. When counting back change to a customer , begin with the *coins* first.

4. Answer should include at least two of the following:
   a. Credit cards can protect merchants.
   b. Credit cards can provide customers with convenience.
   c. Credit cards allow customers to delay paying for a purchase.

5. $35.27

6. $6.98. The change, using the largest bills and coins, should be 3 quarters, 2 dimes, 3 pennies, a one dollar bill and a five dollar bill.

Lesson 2: Third-party Transactions

1. A third-party payer is someone other than patient who is responsible for the reimbursement of health services.

2. a. The patient
   b. The pharmacy
   c. The payer

3. a. The pharmacy provides the prescription service to the patient and then directly bills the third-party. The third-party sends the payment directly to the pharmacy. This is known as *assignment of benefits*.
   b. The patient is required to pay the pharmacy at the time of service and then submit a *claim* to the third-party.

4. a. Government agencies
   b. Private insurers

5. A *deductible* plan requires patients to pay for all of their prescription expenses until a specified dollar amount has been reached. A *co-payment* plan requires the patient to pay a fixed dollar amount for every prescription. For *coinsurance*, the patient pays

for a percentage of the prescription rather than a fixed dollar amount.

6. Medicaid provides prescription drug benefits.

7. $9.20
   $2.00

8. $5.00
   $5.00

9. $58.00
   $10.00

Lesson 3: Office Skills - Activity Sheet

1. It is important to maintain accurate files so that other pharmacy staff can find the files, easily retrieve the information in the files, and avoid confusion.

2. The answer should be a memo.

3. The answer should be a business letter.

Unit VI: Business Operations - Written Evaluation

1.	b	11.	a
2.	c	12.	b
3.	a	13.	a
4.	d	14.	d
5.	c	15.	c
6.	b	16.	c
7.	a	17.	a
8.	d	18.	d
9.	c		
10.	c		

Name: _____

Pharmacy Aide 50-1144-C

Directions: Evaluate the student by checking the appropriate number or letter to indicate the degree of competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:
3 Mastered - can work independently with no supervision
2 Requires Supervision - can perform job completely with limited supervision
1 Not Mastered - requires instruction and close supervision
N No Exposure - no experience or knowledge in this area

(IBM) 12-95

NOTE: The code in parentheses is the competency identification number used in computerized management systems.

☐ Successfully completed the Health Care Assistant Core Competencies

3	2	1	N

A. Introduction to Pharmacy

1. Identify the roles and responsibilities of team members. (A001)
2. Identify educational requirements of pharmacy team members. (A002)
3. Identify opportunities for employment in the pharmacy industry. (A003)
4. Follow a chain of command. (A004)
5. Maintain patient confidentiality. (A005)
6. Practice professional work habits. (A006)
7. Follow state regulations governing pharmacies. (A007)
8. Locate OSHA poster and MSDS in the clinical site. (A008)
9. Identify regulations of the DEA. (A009)
10. Identify regulations of the FDA. (A010)
11. Identify OSHA regulations. (A011)

Other _____

_____

3	2	1	N

B. Communication Skills

1. Use verbal and nonverbal communication. (B001)
2. Utilize communication techniques in handling difficult situations. (B002)
3. Use proper etiquette in answering the telephone. (B003)
4. Place business calls. (B004)
5. Greet customer properly. (B005)
6. Assist customer in locating needs within the pharmacy. (B006)
7. Participate as a team member. (B007)
8. Gather information needed at initial patient contact. (B008)
9. Communicate effectively with co-workers. (B009)

Other _____

_____

3	2	1	N

C. Pharmaceuticals

1. Locate drugs in the pharmacy stock. (C001)
2. Identify drug classifications. (C002)
3. Differentiate between over-the-counter medications and prescription drugs. (C003)
4. Differentiate between brand name and generic drugs. (C004)
5. Differentiate between routes of administration. (C005)
6. Differentiate between dosage forms. (C006)
7. Identify terms related to patient response to drugs. (C007)
8. Use reference books in the pharmacy. (C008)
9. Use abbreviations appropriately. (C009)
10. Convert measurement systems. (C010)
11. Use measuring devices. (C011)

Other _____

_____

3	2	1	N

D. Prescription Processing

1. Process information for new prescriptions. (D001)
2. Identify components of a complete prescription. (D002)
3. Select physician orders pertinent to the pharmacy. (D003)
4. Identify the "rights" for processing a prescription order or physician order. (D004)
5. Differentiate between medication packaging systems. (D005)
6. Generate prescription labels. (D006)
7. Calculate anticipated drug usage for a prescribed period. (D007)
8. Prepare liquid dosage medications for dispensing into bottles. (D008)
9. Prepare topical, otic, ophthalmic, rectal, and vaginal medications for dispensing. (D009)
10. Prepare solid dosage medications for dispensing into bottles. (D010)
11. Prepare solid dosage medications for dispensing into unit dose packaging. (D0011)
12. Prepare liquid dosage medications for dispensing into unit dose packaging. (D0012)

Other _____

_____

3	2	1	N	
				E. Maintaining the Pharmacy
				1. Straighten and clean shelves. (E001)
				2. Identify proper disposal of expired drugs. (E002)
				3. Set up displays - retail. (E003)
				4. Store drugs properly. (E004)
				5. Maintain pharmacy stock. (E005)
				6. Receive an order of medication. (E006)
				7. Inventory and restock floor medications (E007)
				Other _____
				_____

3	2	1	N	
				F. Business Operations
				1. Operate a cash register. (F001)
				2. Process a third-party payer claim. (F002)
				3. Calculate co-payment amount for a prescription. (F003)
				4. Calculate co-insurance amount for a prescription. (F004)
				5. Process cash sales. (F005)
				6. Process credit sales. (F006)
				7. Process in-store credit sales. (F007)
				8. File chronologically. (F008)
				9. Compose business letters and memos. (F009)
				Other _____
				_____

Produced by the Instructional Materials Laboratory • University of Missouri-Columbia • 2316 Industrial Drive • Columbia, MO 65202 • 800-669-2465